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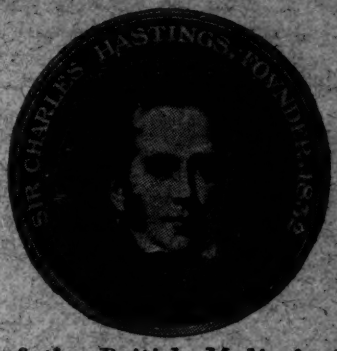

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A NOTE ON WEIL'S DISEASE (SPIROCHAETOSIS ICTERO-HAEMORRHAGICA) AS IT HAS OCCURRED IN THE ARMY IN FLANDERS.

BY

*ADRIAN STOKES, CAPTAIN R.A.M.C. (TEMPORARY),

AND

JOHN A. RYLE, CAPTAIN R.A.M.C.(S.R.).

INTEREST in the subject of infectious jaundice has lately been reopened by a monograph from Drs. Inada, Ido, Hoki, Kaneko, and Ito.[1] Weil first described the disease which bears his name in 1886. It was characterized by jaundice, pyrexia, haemorrhages, and the fact that it was apparently infectious, as the cases occurred either in widespread epidemics or localized groups of cases, or sometimes all the members of a single family would be affected at the same time. In the British Isles the epidemic form is rare, but the family type of infectious jaundice is well known. Widespread epidemics have been seen in the United States, and outbreaks have been reported in India, Africa, and the Near East. To quote the Japanese workers: "In the western part of Japan there prevails an epidemic and endemic disease characterized by conjunctival congestion, muscular pains, fever, jaundice, haemorrhagic diathesis, and albuminuria, which is known as Weil's disease, or febrile jaundice. At the end of last year (1914) the same disease was observed in Chiba, in the eastern part of Japan, near Tokyo, where the patients numbered 178." During the operations in the Gallipoli peninsula there was a widespread epidemic of jaundice, and though we are informed that there is little clinical resemblance between the cases that occurred in the Near East and those which we propose to report in this paper it is still possible that they may have been an anomalous type of the same disease. In Osler's *Medicine* we find:

> The symptoms are at first gastric, then fever follows (with the usual concomitants) and jaundice, which may be slight or very intense, and as a rule albuminuria. The liver and spleen are often enlarged, and in the severe forms there are nervous symptoms and haemorrhages. There is often a secondary fever and the attack lasts from ten days to three weeks. The course is usually favourable; fatal cases are rare in the United States and in India and South Africa, but in the Greek Hospital at Alexandria the death-rate was 32 among 300.

ETIOLOGY.

In 1914 Inada and Ito reported the discovery of a spirochaete in the liver of a guinea-pig which had been injected with the blood of a patient who was suffering from Weil's disease. In 1915 these authors came to the conclusion that this spirochaete was the cause of Weil's disease, and later they found that the blood of patients recovering from Weil's disease contained protective substances against the spirochaete they had found. Further, they showed that when they injected the blood of patients with Weil's disease during the first five days of the disease into the peritoneum of a guinea-pig, the animal developed albuminuria, pyrexia, and jaundice, and they were able to show the spirochaetes in the liver and blood of the animal in large numbers. They were able to pass the infection from animal to animal, and in one strain they had reached fifty generations.

The experiments made with normal people and patients suffering from catarrhal jaundice produced no such result. Subsequently the Japanese workers were able to show the same spirochaete in six specimens of patients' blood in the intestinal wall in one case, and in the adrenal glands in another case of 11 autopsied cases. In two cases which came to autopsy on the sixth day of illness they found the spirochaete in the liver in almost as great numbers in the liver of the guinea-pig. They have, with the blood of 13 of a series of 17 cases of Weil's disease, succeeded in producing the disease in guinea-pigs, the animals showing the typical signs of the disease and the spirochaete being found in the blood and liver of the animals. They state that the blood of all cases taken on the fourth or fifth day of illness gives positive inoculations, and after the fifth day the results are inconstant as the disease progresses. They indicate that the spirochaetes disappear from the blood of the patients coincidentally with the appearance of an immune substance in the blood. In the early stages they state that the spirochaetes are in the blood stream, and as the illness progresses they disappear, and they have been unable to demonstrate them in the tissues. At some period after the tenth day the spirochaetes appear in the urine, and they have been able to demonstrate them both by dark ground illumination and by animal inoculation. The appearance of the spirochaetes in the urine is a consequence of the appearance of the immune substance in the blood. They have been able to find the spirochaetes in the urine as late as the thirtieth day.

Mode of Infection.

Weil believed that the infection was through the alimentary canal. Inada supports this view. Ido and Oki have noticed that the disease sometimes begins with a local swelling of the lymph glands, and they have further been able to communicate the disease to animals by applying infective material to the uninjured skin; this leads them to think that there is a possibility of the infection occurring through the skin exposed to infective material. In support of this they found that the disease was frequent in men working in a certain part of a coal mine and that when the accumulated water was pumped out on their suggestion, there were no further cases in that part of the mine. They also noted that there are more cases in wet mines than in dry mines, and that men working on the surface did not contract the disease. Though this does not show that the infection is necessarily through the skin, it makes it worth considering and is important from the point of view of soldiers working in the trenches. They say that, judging from their clinical cases, infection from man to man is rare. There is the further possibility of the infection being carried by mosquitos or vermin, but they state that they do not think that it occurs, though the reasons for this conclusion are not very clear.

GENERAL CLINICAL PICTURE OF THE DISEASE IN THE CASES REPORTED.

Our attention was first called to the disease by a fatal case of jaundice which was under Captain Flood, R.A.M.C. He has given us permission to mention the case.

> The man was admitted with a temperature of 105° and very deep jaundice. On the evening of admission there was severe epistaxis which necessitated the plugging of the nares. Haemorrhagic diarrhoea set in and on the third day after admission the trunk and limbs were covered with haemorrhagic petechiae; death followed on the next day. At the *post-mortem* examination, by Captain Marshall, R.A.M.C., multiple haemorrhages in the pleurae, pericardium, and peritoneum were the most striking thing. The bile passages were free and the duodenum was normal.

This is the only case that we have seen in which the haemorrhages were of more than a trivial degree, and in this case they were apparently the immediate cause of death. At the time no guinea-pigs were available and the tissues for microscopic examination were unfortunately lost by one of us (A. S.). An emulsion of the liver was examined by dark ground illumination and no spirochaetes seen. A second fatal case occurred a few days later, the patient being admitted under Major Young, C.A.M.C., in an advanced state of toxaemia, and he succumbed during the night after a slight haematemesis. The autopsy revealed no marked haemorrhages, and except for the very extreme jaundice there was nothing to find, the duodenum and bile passages showing nothing abnormal. The liver and kidney from this case were examined by Professor Laidlaw, and he tells us that he was unable to demonstrate the spirochaetes. The case terminated on the twelfth day and the absence of spirochaetes is in accordance with the findings of Inada and his collaborators. About fifteen cases of Weil's disease have now come to our notice, and we have been able to confirm the findings of the discoverers of the pathogenic cause of the disease. In two cases we have infected the animals, and they have shown the characteristic pathological changes and we have been able to demonstrate the spirochaetes.

The earliest cases that have come under our notice have been one on the fifth day of illness and four on the sixth day; the latest case was admitted on the tenth day. With the exception of one case all the men at the time of the onset of the disease were, or had recently been, employed in the trenches. In four instances more than one case

occurred in the same unit. They gave a uniform history of onset, and all the men knew accurately the day on which they first felt ill; this indicates the acuteness of the inception of the symptoms.

The characteristic symptoms have been generalized pains in the head and lower limbs. The patients complain of weakness, and of feeling as if they had been beaten all over, and they are reluctant to move their arms or legs. They frequently complain of severe pain in the eyes; some have complained of vague, unlocalized abdominal pain. In the majority the pains appear to be muscular; the patient is unwilling to have his arm extended for the purpose of taking blood. In one case the pain was apparently most felt in the tibiae. All the patients on admission were very weak, and complained of the early feeling of unsteadiness and inability to stand. One man was found in a fainting condition in the latrine, and another fainted in the trenches and was unable to walk.

Most of the men say that they have been vomiting repeatedly, and in a few cases that they have thrown up blood. Some of the patients say that they have had nose bleeding, but this is not very common.

We have only in three cases any evidence as to the early temperature. In one we have only the patient's word for it, but he was very clear that the temperature on the first day of his illness had been 106° F. In the other two cases we have good evidence that the onset was accompanied by a temperature of 103° F.

In only one case was the patient aware of the day on which jaundice appeared, and he dated it on the fourth day of illness. In two other cases the regimental medical officer told us that the men were not jaundiced when he last saw them on the third day of illness.

On admission the most striking characteristic is the jaundice and the extreme injection of the conjunctivae accompanied by great prostration.

Alimentary System.

The tongue is very dry, brown and fissured. We have seen haemorrhagic herpes labialis in five cases. Abdominal examination revealed enlargement of the liver in only one case and in no instance was there enlargement of the spleen. All the patients were constipated. The stools were of normal colour and bulk. In some of the cases there was blood in the dejecta. Vomiting in the early stages occurred in every case. Diarrhoea was not noted in any case. Appetite, which was lost during the period of pyrexia, returned as soon as the jaundice began to fade. Hiccough occurred in the two most severe cases, one of these terminated fatally. One fatal case had uncontrollable haemorrhagic diarrhoea, and in one other case traces of blood were passed by the bowel.

Circulatory System.

The pulse-rate was as a rule slow in proportion to the pyrexia, and there was very definite slowing during the convalescence. In two of the more severe cases there was a rapid pulse during the first week. The tension and volume was good, even late in the fatal case. There was no evidence of cardiac dilatation.

Respiratory System.

There was no evidence of respiratory complications, but in the acute stages a little blood-stained sputum was noted.

In two cases in which hiccough occurred a peculiar catchy type of inspiration was at times observed.

Excretory System.

Two cases had difficulty in micturition for which there was no obvious cause. The urine contained bile, and there was a slight albuminuria during the pyrexial period in all cases. Acetone was found in the urine of the fatal case.

Nervous System.

Sleeplessness due to the severe pains was common in the early stages; in the more grave cases torpor was noted, and in one fatal case this progressed to the "typhoid state," with rambling delirium and muscular tremors. Pruritus due to the jaundice occurred in three cases.

Lymphatic System.

All cases showed enlarged glands. The pectoral group of the axillary glands were most often felt as discrete shotty nodes on the thoracic wall of the axilla. Glands in the neck and groin were also felt. These were sometimes tender on pressure. The spleen was never palpable, and percussion did not show an enlarged area of dullness.

The Skin.

Varying degrees of jaundice were seen. It was usually of a lemon or orange tint, and never approached the greenish colour of obstructive jaundice. The colour rapidly increased and as rapidly decreased as convalescence began. The degree of jaundice was not constant for two consecutive days, and was always most striking in the severe cases. The date of appearance of the jaundice as far as we know is on the fourth day. Petechial haemorrhages only occurred in one fatal case.

The Fever.

All cases showed an irregular pyrexia descending by lysis. Subnormal temperature was common in early convalescence, and also preceded death in one case. A few cases presenting all these symptoms with the exception of jaundice were seen, but in the absence of the jaundice they were not investigated.

PROGNOSIS.

From the cases that have been observed it would appear that there are both mild and very severe types of Weil's disease. The jaundice, weakness, and pain in some of the cases have been slight and not of long duration. On the other hand, there have been three deaths, and at least two other cases have been very ill.

The following are short clinical notes of the individual cases, with temperature charts.

CASE I. (Captain Ryle.)

Pte. R., aged 19, was admitted on May 13th, 1916, the sixth day of illness, with the following symptoms and signs: Jaundice; pains in the abdomen, head, and limbs; dry, furred tongue; conjunctival injection; enlarged and painful axillary glands. Liver dullness normal, spleen normal. No other definite physical signs. Epistaxis, haemorrhagic sputum, haemorrhagic herpes labialis; slight albuminuria; difficulty in micturition.

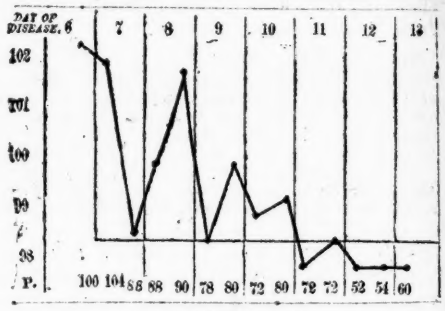

CHART 1.

A guinea-pig inoculated intraperitoneally with blood taken on the sixth day developed jaundice on the seventh day after inoculation, and spirochaetes were found in the liver emulsion by dark ground field illumination.

CASE II. (Major Young.)

Cpl. G. was admitted on May 18th, 1916, with jaundice and a temperature of 102.8° F. Onset May 11th; temperature 103° F. Giddiness, vomiting, abdominal pain, general malaise. No haemorrhages. On May 12th the temperature was normal; on May 13th normal in the morning and 104° F. in the evening. He was sent to the field ambulance.

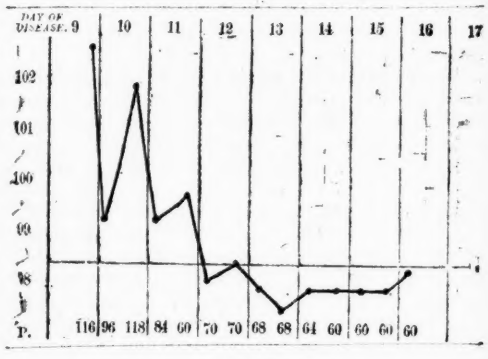

CHART 2.

Date of onset of jaundice, May 16th. On May 18th there was conjunctival congestion, the glands were not enlarged, breathing was short and grunting, aching pains in limbs and head. Slight tenderness over liver, spleen not enlarged. On

May 19th the jaundice was more marked; blood in sputum and epistaxis. Glands of groin and axilla enlarged. Urine showed bile and albumin. May 20th: Vomited twice without cause; brown furred tongue; faeces normal in colour. May 23rd: Jaundice fading. Convalescence uneventful.

No spirochaetes found in blood or urine. Guinea-pig injected on the sixth day was negative.

CASE III. (Captain Ryle.)

Pte. H. was admitted on May 19th, 1916, on the tenth day of illness, with marked jaundice, general malaise, headache, pains in the legs. History of gradual onset with vomiting. He had distressing hiccough and catchy respiration. The pains in the legs were severe, conjunctival congestion very marked, and glands palpable. Liver not enlarged, spleen not palpable, very dry furred tongue. No haemorrhages. Urine showed albumin and bile. Stools normal.

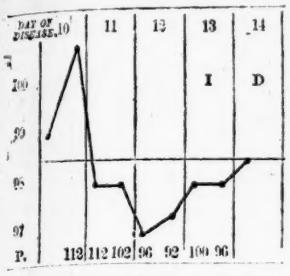

CHART 3.—I, Intravenous saline; D, Death.

May 21st: Mental confusion, very gravely ill, "typhoid state." Inability to micturate. Blood culture negative. May 22nd: Rambling delirium, jaundice more marked, retching and vomiting, pruritus and catchy respiration. Attack of dyspnoea. Incontinence. May 23rd: Muscular twitchings. Two pints of saline intravenously. Acetone in urine. May 24th: Death.

Post-mortem Examination.—Extreme jaundice, two small haemorrhages in the mesentery. Bile passages patent and bile in the intestine. Polypi in the stomach and a pedunculated polypus from which there had been haemorrhages near the pyloric end, which looked like a thrombosed pile. Kidneys enlarged, jaundiced and with multiple haemorrhages. Spleen small. Heart very flabby.

No animal inoculations. No spirochaetes found in blood or urine though repeatedly examined. Emulsions of liver and kidney showed no spirochaetes when examined by dark ground illumination.

CASE IV. (Captain Ryle.)

Pte. B., aged 27, was admitted on the sixth day of disease with intense jaundice, generalized pains, especially severe in the limbs and head. Vague abdominal pains, history of vomiting. Very dry furred tongue. Liver and spleen showed no enlargement. No haemorrhages. Conjunctival congestion very well seen. Urine showed no albumin; on the eighth day albumin was present. The jaundice increased somewhat and then rapidly disappeared until he was almost normal in colour on evacuation.

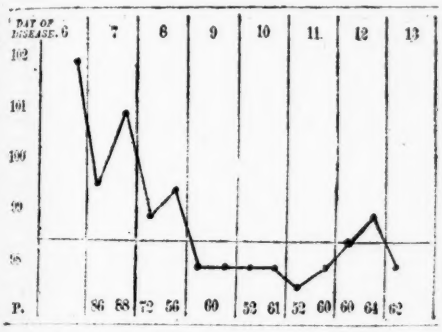

CHART 4.

Guinea-pig inoculated with 2½ c.cm. of blood did not develop jaundice. One spirochaete was seen in the blood on the sixth day by dark ground illumination.

CASE V. (Captain Ryle.)

Pte. R., admitted on the sixth day. Gave history of generalized pains, vomiting, and on one occasion temperature of 106° F.

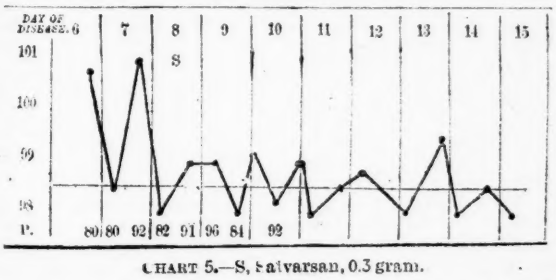

CHART 5.—S, Salvarsan, 0.3 gram.

Found unconscious in the latrines one day. On admission had profound jaundice, headache, dizziness, pains in abdomen and limbs, and a very brown dry tongue. Conjunctival congestion, spleen and liver not apparently enlarged. Albumin in urine; no diacetic acid or acetone. Weakness and malaise very marked on admission.

On the eighth day of illness the patient had 0.3 gram of salvarsan intravenously, which had no apparent effect on the symptoms or course of the disease. Jaundice increased progressively till the ninth day, and then gradually disappeared. Epistaxis on the ninth day. No other haemorrhages occurred throughout the course of his illness. Blood count on fourteenth day gave 6,000,000 red cells, haemoglobin 73 per cent. Evacuated on fifteenth day convalescent.

Guinea-pig inoculated on the sixth day, became ill on the seventh day, and was killed on the ninth day. No jaundice occurred in the animal; spirochaetes were found in the liver and blood in large numbers. The pathological changes in the animal were typical. Plasma of the patient examined for spirochaetes on the sixth day showed them both by dark ground illumination and stained by Giemsa stain.

CASE VI. (Captain Ryle.)

Pte. B. was admitted on the tenth day, and gave a history of having fallen sick with bilious vomiting while in the trenches. Generalized pains and weakness. No albumin in the urine when he was admitted; no positive signs except jaundice, which was slight in degree, and history of pains and weakness. After the first day his temperature was subnormal.

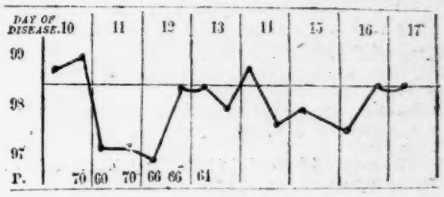

CHART 6.

No animal inoculation.

CASE VII. (Captain Ryle.)

Pte. C. was admitted on the sixth day of illness with history of vomiting at onset and jaundice appearing on the fourth day, which the patient states to have been his worst day. He also gave a history of epistaxis and blood-stained sputum. Generalized pains.

On admission deep jaundice and extreme injection of the conjunctivae, axillary glands, and posterior cervical group also enlarged. Headache, vague abdominal pains, and hiccough. Spleen not enlarged, liver slightly enlarged and tender. Vomited for three days and had very severe pains in the shins.

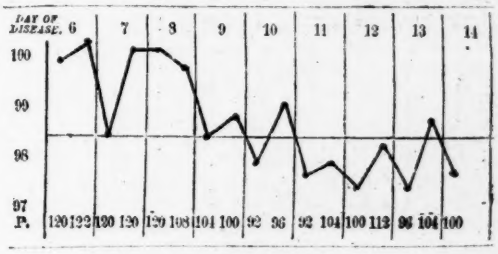

CHART 7.

He was very gravely ill and had deeper jaundice than any other case in the series. The urine contained a trace of albumin. On the ninth day a little blood-stained mucus was passed from the bowel, but the motions were hard and scybalous. Rectal salines given daily. Patient remained seriously ill up to the fourteenth day, when he seemed better. Jaundice still very deep.

Two guinea-pigs inoculated on the sixth day, with negative result. No spirochaetes found in patient's blood or urine.

CASE VIII. (Captain Ryle.)

Pte. C. was admitted on sixth day of disease with history of shivering at onset and vomiting on one or two occasions. Generalized pains.

On admission jaundice, injected conjunctivae, haemorrhagic herpes labialis, dry brown tongue, axillary glands palpable, trace of albumin in the urine. Very ill; jaundice increased for two days and then began to decrease. On the ninth day he was much better and convalescence was uneventful except for the great weakness.

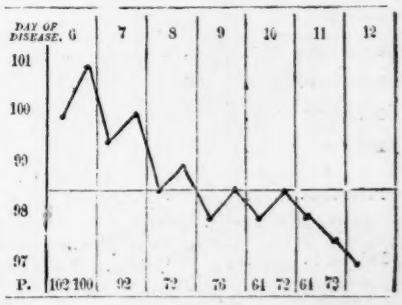

CHART 8.

Two animals inoculated, with negative results. Urine and blood negative by direct examination.

CASE IX. (Captain Ryle.)

Pte. M. was admitted on the eighth day with history of shivering at onset, followed by pains in the limbs and head. No account of haemorrhages.

On admission, deep jaundice, slight conjunctival congestion, haemorrhagic herpes labialis. Urine contained a trace of

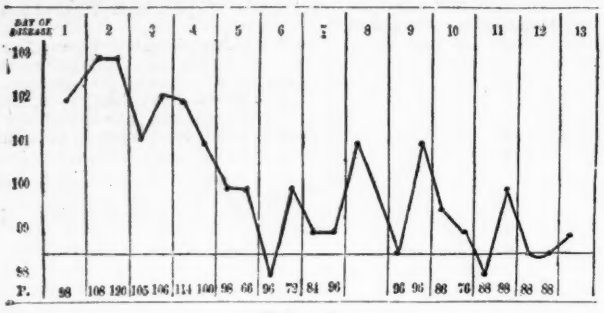

CHART 9.

albumin; no enlargement of spleen or liver. Constitutional symptoms slight, and jaundice decreased from day of admission.

The animal inoculated was negative. Urine: No spirochaetes found by direct examination.

CASE X. (Lieutenant O'Connor.)

Pte. H. was admitted on fifth day of illness with history of onset in trenches, characterized by extreme weakness in the legs; no haemorrhages.

On admission, jaundice, brown furred tongue, great prostration, very severe pains in the limbs, head, and eyes. Jaundice

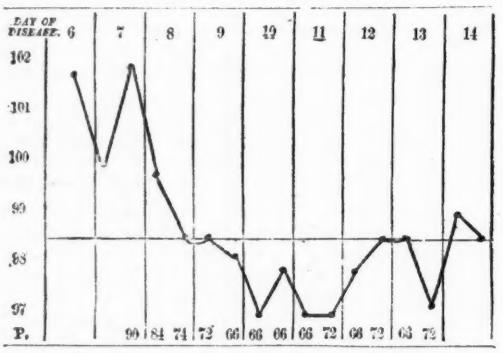

CHART 10.

very pronounced on sixth day, still more so on the seventh day, but began to fade on the eighth day. Haemorrhagic herpes labialis. The patient was very torpid throughout.

Animal inoculated on the fifth day; is not yet ill on the seventh day after inoculation. No spirochaetes found in the plasma on the sixth day. Urine negative by direct examination.

EXPERIMENTAL.

Inada, Ido, and Oki injected the blood of patients with Weil's disease into guinea pigs, and of 17 inoculations had 13 positive results. They do not state how much blood they injected, or how many animals were used for each experiment. We have had only two positive results in animals from the blood of patients. In each case the guinea-pig was found to have the spirochaetes in large numbers in the liver and blood.

Table showing the Injections made into Animals, the Day of Disease on which the Blood was taken, and the Amount of Blood used.

Name.	Day of Disease.	Amount.	No. of Animals.	Result.
Private R. ...	6th	2½ c.cm.	1	Positive.
Corporal G. ...	8th	2½ ,,	1	Negative.
Private B. ...	7th	2½ ,,	1	Negative.
Private R. ...	6th	2½ ,,	1	Positive.
Private J. ...	9th	7 ,,	1	Negative.
Private G. ...	6th	3½ ,, and 7 ,,	2	Negative.
Private C. ...	6th	3½ ,, and 7 ,,	2	Negative.
Private M. ...	9th	7 ,,	1	Negative.
Private C. ...	8th	3 ,,	1	Negative on 7th day.
Private H. ...	5th	5 ,,	1	Negative on 7th day.

It will be seen from the table that two of the four experiments done on the sixth day of illness were positive, and that no positive results were obtained after the sixth day. The infected guinea-pigs became ill on the fifth day after injection in one case, and on the seventh day in the second case. They were quiet, easy to catch, and stayed in a hunched-up manner in the cage. The temperature went up to over 104° F. in each case, as is seen on the charts.

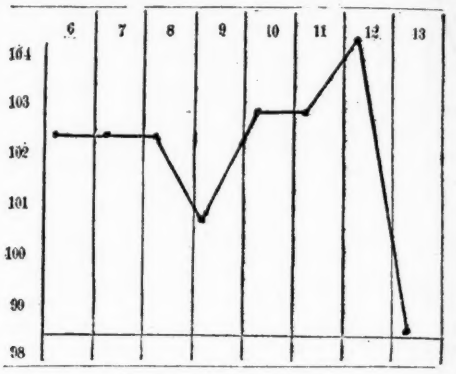

CHART 11.—Pte. R. (first).

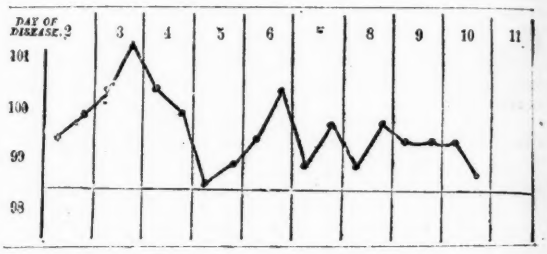

CHART 12.—Negative guinea-pig.

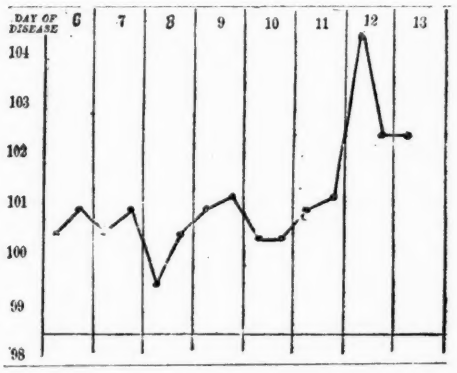

CHART 13.—Pte. R. (second).

Temperature charts of two infected animals and one non-infected animal.

The infected animals were killed and a *post-mortem* examination done immediately. Both showed the typical pathological changes. To quote from the Japanese workers:

> The lungs present small and large haemorrhagic spots, like the wings of a mottled butterfly. This change is one of the most important in the diagnosis of the disease.

This discription of the lungs is very good and they resemble nothing more than a very gaudy butterfly. The intestines of the two animals both showed the haemorrhages in the intestines. One of the animals had very deep jaundice, in the other there was no evidence of jaundice. Emulsions of the liver were made and examined with dark ground illumination and very numerous spirochaetes were found. They were rather straight and with curves resembling those seen in *S. refringens* rather than those seen in *S. pallida*. The spirochaetes might be

described as a small replica of *S. refringens* both in shape and movements. The screwing movements of *S. pallida* were not well seen, but the movements from side to side of one end, as described by Inada, were very well seen. The length of the organism varies very much, long forms being more frequently seen, though short forms also occurred. With the dark ground illumination they appeared somewhat granular, and seemed to be composed of closely

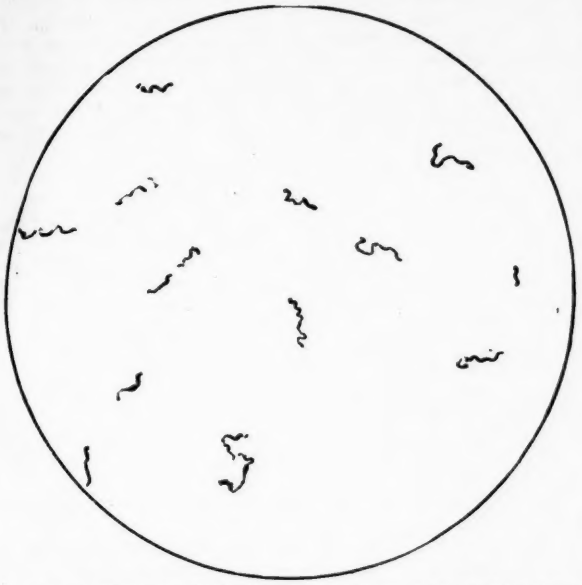

FIG. 1.—Diagram of spirochaetes in guinea-pig liver stained by Levaditi's method. To show number seen in field. They are not drawn to scale, but merely represent the shapes.

packed refractile particles. In smears made from the liver emulsion the spirochaetes were seen stained with Giemsa stain; they were for the most part rather straight and with a hook at one end; some good spiral forms were seen, and some were slightly granular. They stained a pinkish violet colour, and, except in specimens stained for long periods, they were rather hard to define. We found that with the specimen of Giemsa which we were using about

FIG. 2.—Diagram to show spirochaetes seen in one field of the kidney, to represent the shape and forms seen. They are not drawn to scale.

forty hours gave the best results. In some places they were found in groups of four or five, with the appearance of being looped together. They appeared to be somewhat longer than a red corpuscle and about as thick as a typhoid bacillus. Sections of the liver and kidney of both animals stained by Levaditi showed the spirochaetes very well; in the liver they occurred in very large numbers, and in the kidney perhaps not more than three or four were found in a field.

We have not yet attempted to cultivate the spirochaetes, but hope shortly to do so. We have examined the urine of all the cases up to date, but have not so far been able to find the spirochaetes in them. This may be on account of the comparatively early date on which the patients are evacuated to the base. The experiments of infecting

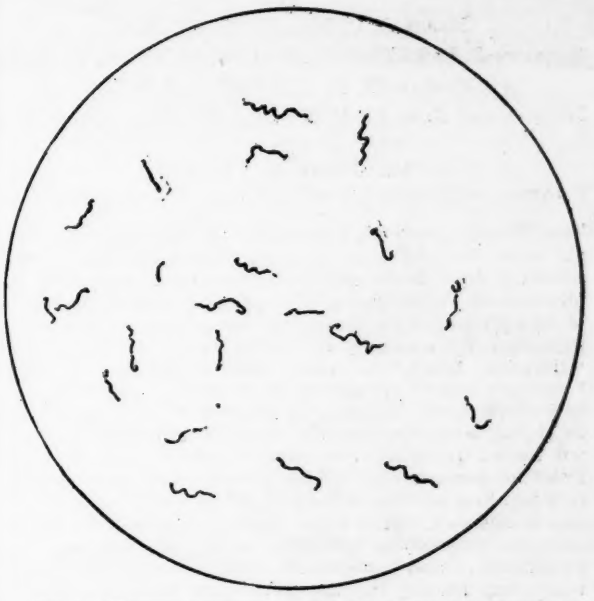

FIG. 3.—Diagram to represent one field of liver in guinea-pig. The organisms are not drawn to scale, but are to represent shapes and forms seen in a field.

guinea-pigs with the urine of the patients are not yet complete. The Japanese authors state that after the fourteenth day the spirochaetes appear in the urine of the patient, and they have succeeded in five out of fifteen experiments in infecting animals with the urine. The examination of the blood of the patient for spirochaetes was done in six cases, and in only one were they easily found. In this case the blood was citrated and allowed to stand, and then the plasma centrifugalized and examined with the dark ground stage and also by staining; the spirochaetes were seen moving and also stained, and the guinea-pig infected with this blood gave a positive result. In another case a single spirochaete was found with the dark ground illumination, but, as only one was found, we are not very confident that it was a real organism. Reinoculation was successful from animal to animal, and Professor Laidlaw informs me that he has also passed the disease from animal to animal from the first strain isolated.

Blood cultures were made in every case for the typhoid group organisms, and were uniformly sterile.

CONCLUSION.

In conclusion, we think that the experimental facts which we have to offer are meagre, but are sufficient to show that the cause of epidemic jaundice (spirochaetosis icterohaemorrhagica) in Japan and in Flanders is identical. We think it also of importance that the infective possibilities of the disease should be recognized. We hope at a later date to have some more evidence to bring forward.

REFERENCE.

[1] *Journal of Experimental Medicine*, March 1st, 1916. See BRITISH MEDICAL JOURNAL, 1916, vol. i, pp. 491, 627.

THE late Dr. John Harold left estate valued at £28,990, with net personalty £18,176.

THE *New York Medical Journal* of August 19th states that, after a trial of the "twilight sleep" in childbirth extending over more than a year, the obstetricians of Johns Hopkins Hospital, Baltimore, have discontinued the use of the method. They came to the conclusion that it is too dangerous and involves grave risk to the life of the child. They found that it could be employed with safety only in exceptional circumstances and under the most skilful supervision.

A Memorandum

UPON

HEART AFFECTIONS IN SOLDIERS,

WITH SPECIAL REFERENCE TO PROGNOSIS OF "IRRITABLE HEART."

BY

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CAPTAINS J. PARKINSON AND E. B. GUNSON, R.A.M.C.,

CAPTAIN T. F. COTTON, C.A.M.C.,

LIEUTENANTS J. G. SLADE AND A. N. DRURY, R.A.M.C.,

AND

DR. THOMAS LEWIS,

MEMBER OF THE STAFF OF THE MEDICAL RESEARCH COMMITTEE.

THE Military Hospital, Hampstead, of 200 beds has been set aside for the admission and treatment of soldiers suffering from heart affections, and more especially for observations upon those who present a particular group of symptoms. This group of symptoms is frequently indicated by classing the patients as sufferers from "irritable heart," a term less comprehensive than "soldier's heart," yet more comprehensive than "D.A.H." (disorderly heart action). It may be well at the outset to define more exactly the type of affection to which we intend to apply the term "irritable heart" in the following paragraphs. We use it to describe those patients in whom few or none of the graver signs of heart affection can be detected, but in whom there is complaint of breathlessness, palpitation, giddiness, or actual fainting, easy exhaustion, and precordial pain in varying degree; symptoms arising for the most part under exertion or exaggerated by it. At the same time we shall deal briefly with other and more frankly cardiac maladies, reciting our recent experiences. Our present purpose is especially to describe our method of dealing with soldiers in our attempt to sort them into various categories of fitness or unfitness for duty. We shall illustrate our remarks from three fully-equipped and independent services of 50 beds, and confine ourselves to patients who have passed through our hands during the first three months of our work, and have left the hospital. These patients number 251.

FIRST SIFTING.

(By Physical Examination.)

Of these 251 patients, 113 were discharged from the army within a few weeks of their admission, and these fall into four categories:

1. Mitral stenosis	31
2. Mitral stenosis and aortic disease	7
3. Aortic disease	22
4. Myocardial disease with or without enlargement, and with or without mitral incompetence ...	53
	113

The first three categories require little comment; these patients all presented unmistakable signs of grave structural alterations in the heart. The fourth category is less clearly defined, and comprises:

(*a*) A number of patients in whom there was unmistakable and considerable enlargement of the heart with or without mitral incompetence. In estimating enlargement we have been guided by percussion and by the outermost point of pulsation. Diffusion of the impulse to one or more rib spaces, or an impulse or percussion border 4 or 4½ in. from the midline,* are not regarded as sufficient grounds for discharge if they occur alone, and especially is this the case in men who are heavily built, or in whom the heart action is rapid during the examination.

(*b*) Patients in whom there are grave disorders of the heart's action, with or without enlargement of the organ. These are rare, the most notable examples being those in whom gross irregularity is constant from hour to hour and from day to day, and in whom the irregularity is accompanied by rapidity of the heart's action while the subject is at rest. They are examples of fibrillation of the auricles. A very few patients have been discharged as unfit in whom heart-block has been discovered by instrumental examination. There are two further forms of irregular heart action which we encounter in a large proportion of our patients. The first is *extra-systolic irregularity*, giving rise to intermittent pulse or simple groupings of the pulse beats, and an irregularity which may be identified when respiration is deepened, for it then consists of a waxing of pulse-rate during the inspiratory period and a waning during expiration. These two forms of irregularity are easy to identify by ordinary methods of examination, and when identified should not, in our opinion, influence the category in which the patient is placed or the question of discharge. All patients who present them are dealt with as though such signs were absent, attention being centred upon the remaining signs and symptoms.

(*c*) A high percentage of the fourth group is formed by patients in whom a systolic murmur is audible at the apex. When this murmur is harsh in quality and well conducted to the axilla and is at the same time associated with (α) an exaggerated first heart sound and accentuated or reduplicated second pulmonic sound, (β) a thrill, (γ) a history of recent rheumatic fever or of two or more attacks of rheumatic fever, (δ) severity and persistence of symptoms, it is considered, with its associations, a sufficient ground for discharge. Standing by itself, a systolic murmur at the apex is not considered to be a sufficient ground for discharge, whatever the character of the murmur; in our experience many men who present this sign are capable of a great deal, if not of full and continued effort.

(*d*) Rare cases with severe cardiac pain, radiating to the arm.

The signs to which we attach little or no value in this first sifting of cases it may be well to tabulate; they are:

1. Extra-systolic or respiratory irregularity.
2. Acceleration of the heart's action.
3. Diffusion of the heart's impulse.
4. Jerky impulse.
5. Short soft systolic murmur at apex.
6. Systolic murmurs in the aortic or pulmonic region.

In the first sifting we discharge, for the reasons stated, some 35 to 40 per cent. of our patients. It will be evident that we carry over to our second sifting some patients who must ultimately be discharged as suffering from organic heart disease. The total proportion of discharge in first and second siftings as organic heart affections amounts to 45 per cent. The remaining 55 per cent. we class as cases of "irritable heart"; in an unknown percentage of these early structural changes no doubt exist, but it is for the present convenient to place all soldiers in whom no positive evidence of serious organic heart lesions can be found in the category named.

SECOND SIFTING.

(By Continuous and Special Observation.)

In our second sifting we are dealing with 60 to 65 per cent. of our original admissions; in the main there are patients in whom no clear signs of organic heart disease are discoverable, these are the patients to whom we apply the term "irritable heart"; in small part they are patients whose class for the moment is doubtful, but who eventually will be returned in the group of organic heart disease. Continuous observation reduces the percentage to 55. We are now left solely with cases of "irritable heart"—that is to say, with patients who have symptoms, but in whom no sign which we regard as a trustworthy sign of organic heart mischief can be discerned, either at the first or at subsequent examinations. It is in respect of these patients that disagreement as to subsequent fitness for service is likely to arise; and at an early stage we found it impossible to arrive at satisfactory conclusions from physical examination or consideration of the history. Consequently we have instituted a series of test exercises upon which all such patients are placed.

The exercises adopted are a selection from the code of army exercises. These offer many advantages; they are directed by a sergeant-major instructor thoroughly conversant with them, and in a position to maintain discipline amongst the men; they are in large measure familiar to the men; they are exercises which many of the men will be called upon to undertake who return to their dépôts.

*Measurements which are equivalent to the nipple line in most subjects.

They are supplemented by route marches, in light or full kit.

Exercise Table A^{15} *(Fifteen Minutes).*

Heels raise, feet close.
Head backward bend.
Hips firm, arms bend, arms upward stretch.
Trunk turning (with feet closed).
Foot sideways place.
Trunk bending sideways.
Trunk forward bend.

Exercise Table B^{15} *(Fifteen Minutes).*

Heels raise and knees bend.
Arms sideways stretch, one arm upward, one arm downward stretch.
Trunk turning (feet apart).
Feet close and full open.
Trunk bending sideways.
Slow march.

Exercise Table C^{15} *(Fifteen Minutes).*

Heel raising and knee bending quickly.
One arm upward, one arm downward stretch.
Foot placing sideways.
Trunk bending sideways.
Trunk backward bend.
Trunk forward bend.
Slow march.

Exercise Table C^{15} *(Fifteen Minutes). Second Part.*

Arms forward bend.
Trunk turning.
Knee raising.
On the hands down.
Quick march.
Knee raising quick mark time.
Slow march.

Exercise D^{30} *(Thirty Minutes).*

Heels raise, knees bend, arm stretching sideways.
Head backward bend.
Arm swinging upward.
Trunk turning quickly.
Foot placing sideways.
Leg raising forward.
Trunk bending sideways quickly.
Lying on the back down, leg raising.
On the hands down, arms bend.
Trunk forward bend, arm stretching sideways.
Knee raising quick march.
On alternate feet hop.
Upward jumping.
Slow march.
Arm raising sideways, upward, sideways, downward.

The individual exercises are grouped under the headings A^{15}, B^{15}, C^{15} (first part), C (second part), each of which occupies fifteen minutes, and under D^{30} which occupies thirty minutes. The exercises are taken daily and in favourable instances a patient moves to a higher grade exercise after three or four days. The patient moves from A^{15} to B^{15} to C^{15}, to AB* (thirty minutes) to BC (thirty minutes) to C^{30} (both parts), and finally to D^{30}. Thus he passes through seven groups of exercises, in a scale of ascending severity. D^{30} is eventually taken in combination with route marches of four or more miles without pack, with light pack, or in full marching order.

At first all the medical officers of the hospital attended the drills and watched small groups of patients through them, making observations upon heart-rate and respiratory-rate and comparing objective signs of distress with the patients' subjective symptoms. Eventually we found this to be unnecessary, and at present we only examine patients immediately after they first take a new exercise, or when they specially report themselves or are reported. Our patients gradually class themselves according to the highest grades of exercise which are borne without distress, and in estimating fitness for duty we are finally and chiefly guided by these tests. The appearance of a man coming from drill—his expression, his colour, his breathing, and excessive heart-rate (140 to 160), are invaluable objective clues to his tolerance of the exercise, and he is put forward or back, or maintained on his exercise after due consideration of these signs and his statement of his symptoms upon the exercises.

That a man's *observed* capacity to accomplish work of a given order is the only dependable test of such capacity would seem self-evident; yet it is the experience that medical officers rely more upon physical signs obtained while the subject is at rest. We are convinced that, with few exceptions, a final sorting cannot be accomplished efficiently in this manner. After the first sifting, which eliminates manifest organic heart cases, exercises alone serve our purpose. In selecting a candidate for a post as typist, it is not by questionings, it is not by examining the configuration of the hands or the electrical responses of the muscles that the desired knowledge of deftness and accuracy in working is to be obtained. The decisive test is an exercise upon the machine which will be used. It is true that specific anatomical defects may divulge incapacity; it is equally true, on the one hand, that anatomical imperfections do not necessarily unfit, and, on the other hand, that seeming anatomical perfection is no criterion of manipulative power or skill. The heart provides no exception from these clearly sound propositions. A large percentage of our patients are discharged on the first physical examination; in a larger percentage we are compelled to fall back upon exercises. A few cases of irritable heart may be discharged at an early date because they present a persistently high respiratory-rate.

It has been our special endeavour to find some relatively simple and quick test which will eliminate the unfit, and for this purpose we have made elaborate observations upon pulse-rate, blood pressure, and respiratory-rate under various conditions of posture and exercise. We have taken numerous instrumental records, polygraphic and electro-cardiographic; we have also noted such physical signs as basal murmurs, jerky impulse, extended impulse, various alterations of the heart sounds and signs of vaso-motor instability; with a solitary exception, we find these to be of no value in gauging the grade of exercise which will ultimately be tolerated or readily be borne. The solitary exception is the rate at which the pulse falls when it is accelerated by a brief exercise. If a patient walks smartly down a flight of twenty steps, along a short corridor, and up the same flight of steps, and the pulse subsequently fails to reach its original level within two minutes, that patient will but rarely reach a high-grade exercise. But quick recovery of pulse-rate is no criterion of ultimate fitness.

We return many patients with minor physical signs as fit for duty in different capacities, and our decisions in these cases have been arrived at after testing their capacity by the direct method. Many go back to duty with systolic murmurs at base or apex. It is our daily habit to place men with these signs on exercises; many of them are capable of undertaking the higher grade exercises for long periods. The exercise system has taught us not to be uneasy in submitting heart cases to exercise tests; in a four months' experience no patient has shown serious symptoms during the progress of his exercises. Immunity from accident we attribute to the first sifting and to our habits of cautiously advancing the grade of exercise, and of limiting the progress of exercises in men who *show* distress. Subjective distress is insufficient for evident reasons; objective distress is to be obtained, and men on exercises should be under close observation.

Men who improve and progress to the highest exercises and carry them out without distress for several weeks in conjunction with route marches, are boarded as fit for duty in army categories (*a*) or (*b*) according to circumstance. Men who improve less, whose progress is slower, and who tolerate the highest grade exercises less perfectly are boarded under army categories (*c*) and (*d*). Those who show continued distress on lower grade exercises are discharged as unfit. Working in this fashion our discharges amongst 138 cases of "irritable heart" have been approximately:

	Per Cent.
(*a*) Duty	18
(*b*) Light duty and likely to be fit for service overseas within three months	23
(*c*) Light duty, and not likely to be fit for service overseas within three months or requiring special medical treatment	6
(*d*) Service at home, but unlikely ever to be fit for service overseas	17
Permanently unfit	36

The system adopted is relatively quick in its sorting. The average stay of "irritable heart" cases in other hospitals has been three and a half months† before they came to us. The average stay of irritable heart cases at Hampstead is two months.

Tabulating our patients under the army categories under which they are boarded, several facts of interest are brought to light.

* The objects of combining exercise groups in this fashion is first to decrease the work of the instructor (thus the three classes A, B, and AB together occupy thirty minutes), and secondly, to use throughout the whole system relatively few exercises, so that they may be readily acquired and thoroughly learnt.

† We would emphasize this fact; for it means that a great deal of sifting has occurred before our cases come to us. For this and others reasons we are of opinion that the cases of irritable heart with which we deal are relatively severe instances of the affection.

A Table of 138 Irritable Heart Cases.

Class of Discharge.	Number of Patients.	Average Age.	Been Foreign Service.	Seen Home Service only.	Chorea or Rheumatic Fever.	No Chorea or Rheumatic Fever.	Usual Duration of Symptoms.	Average Stay in Other Hospitals.	Average Stay at Hampstead.
Categories:								Months	Months
a	25	25	21	4	0	25	1-6 mths.	3	1½
b	31	26	25	6	0	31	4-12 mths.	4	2½
c	9	26	5	4	4	5	1-3 yrs.	3½	2
d	24	29	19	5	7	17		3	2½
Permanently unfit	49	25	30	19	16	33	Several years	4	2

The proportion of favourable results is highest amongst men who have broken down in health *on active service*. Men who develop their symptoms while training at home are distinctly unfavourable subjects.

The prevalence of rheumatic or choreic history amongst cases of "irritable heart" is too high to be a matter of coincidence (19 per cent.); it suggests the presence of early rheumatic heart lesions in many of these soldiers. Patients in whom there is such a history rarely reach the higher grade exercises, though their physical signs do not noticeably differ from the remainder. The majority have to be discharged as permanently unfit*; a few are returned to duty in categories *c* and *d*.

A striking feature of the table is the relation between the duration of the symptoms and subsequent events; 46 per cent. of irritable heart cases give, on careful inquiry, a history of symptoms dating back *prior to enlistment*. The longer the history the worse the prognosis; patients in whom the history is of years' standing make little progress; those soldiers are most likely to return to duty in whom the history is of a few months' duration.

THE EXERCISES AS A THERAPEUTIC MEASURE.

The exercises have an undoubted value as a therapeutic measure. Improvement of the symptoms, objective and subjective, is in many patients rapid and conspicuous. Physically and mentally the men benefit. Some improvement is the rule in most of our patients. Many other remedies have been resorted to, and none has proved efficient, to our knowledge. In agreement with other observers we find confinement to bed and lack of occupation to be detrimental. If circumstances permit, we propose to publish further memoranda† on this subject in the future. For the present we are content to record our chief conclusions—namely, that in sorting patients for discharge as permanently unfit, or in returning them as fit for duty in the several categories of the Army Order, a system of graduated exercises is the only reliable means at our disposal when patients with clear signs of serious heart affections have been eliminated; and such a system is also of distinct therapeutic value.

* The figures of our tables are somewhat but not greatly misleading in this respect, for a history of rheumatic fever or chorea has been taken into account in a number of cases when considering the question of discharge.

† A number of independent researches are being carried out at the hospital; they are inquiries bearing upon the causation of the affection, and inquiries into the effects of remedies; many of these are progressing to completion, and we hope to publish our observations in the near future.

THE estate left by the late Dr. John B. Murphy of Chicago is valued at 1,125,000 dollars (£225,000), of which £200,000 is in real estate.

IT has long been felt by the medical profession in the United States that the establishment of a standard examining body for the whole country is desirable. That feeling led in 1915 to the formation of the National Board of Examiners, the purpose of which is to establish a standard of examination and certification of graduates in medicine for the licence to practise. The board is to consist of the surgeons-general of the army, navy, and public health services, one representative from each of the Government services, three representatives from the State examining boards, and six members chosen from the profession. The head quarters of the board are to be at Washington.

NOTE ON AN ANTENATAL OR PREGNANCY CLINIC AT THE EDINBURGH ROYAL MATERNITY HOSPITAL.

By J. W. BALLANTYNE, M.D., F.R.C.P.E.,
PHYSICIAN, EDINBURGH ROYAL MATERNITY HOSPITAL.

SINCE it would appear that in some minds doubts have arisen regarding the value of antenatal or pregnancy clinics, and of a differentiated prematernity department in connexion with or included in a maternity hospital, it may be well simply to describe such a clinic and demonstrate its relations with the maternity hospital and prematernity department.

Some objection has been taken to the word "antenatal." It has been stated to be a comparatively new and an objectionable word, compounded of an adverb and an adjective. Sir James Murray, however, in the *New English Dictionary*, lists it, has no criticism to make upon it, and does not even indicate it (in 1888) as "not-naturalized." Further, the word has been used by authors of repute. Thus Shelley, in 1817, in his poetical fragment *Prince Athanase*, wrote:

> Some said that he was mad, others believed
> That memories of an antenatal life
> Made this, where now he dwelt, a penal hell.

Kingsley, too, in 1848, referred to "heaven, my spirit's antenatal home"; and Farrar in 1879 in his *Life of St. Paul*, spoke of the "antenatal predilection for Israel and detestation of Esau." None of these men would be refused a claim to the title of a literary man, but De Quincey is admitted by all to be a prince amongst the writers of English prose, and he penned the following passage: "All necessity for supposing immediate impressions made upon our understandings by God or other supernatural, or antenatal, or connatal, agencies, is idle and romantic." When, therefore, in 1892 I employed the word "antenatal" in the phrase "antenatal pathology," as a convenient and suitable designation for the department of scientific medicine which should contain all the morbid states found in existence before birth, it appears that I was following the example of the poet, the novelist, the divine, and the justly admired man of letters. I could, of course, have called it the department of teratology, of fetal pathology, and of morbid heredity; but I was looking for a comprehensive name under which to group all the pathological developments of the life before birth, and I am inclined to maintain that I found it. Its extension, first to antenatal hygiene, then to antenatal treatment, and latterly to antenatal clinics could hardly have been stayed by me even had I desired to lay an arresting hand on it; but surely no one can possess an intelligence so curiously mis-orientated as to imagine that antenatal clinics for expectant mothers mean opportunities for the examination of these mothers before their birth. An antenatal clinic is concerned with the investigation of the health or sickness of the antenatal life within the mother as well as with the health or disease of the mother herself, both of which are of course intimately bound up with the unborn infant's wellbeing. At the same time, I am unwilling to differ from any man on so microscopical a matter, and if there is a general desire that these clinics should be termed "pregnancy," "prematernity," or even "gestational," I shall be ready to join in calling them so; but the terms "antenatal pathology" and "antenatal hygiene" are too useful and too well established to be sacrificed for the sake of pedantic purism. As a matter of fact, I have myself employed "pregnancy clinics" now and again as a convenient, if rather ungraceful, synonym.

The particular antenatal clinic which is here to be described was held in the Edinburgh Royal Maternity Hospital on July 25th, 1916. In conducting it I was assisted by two resident medical officers (one of whom is qualified), and by two sisters, one of whom holds the diploma of the C.M.B., and has had an extended experience in dealing with pregnancy cases both inside and outside the hospital. On this day there were fifteen patients in attendance, and this was above the average (between eight and nine) for July. It turned out that one of the women, an albuminuric case, had formerly been in the hospital, but was not now pregnant; and she was dealt with as a puerperal patient. Fourteen pregnancies were therefore left to be investigated.

In each case the urine was tested, the past history

entered in the book for the purpose, the present state both of the general systems and of the reproductive organs was investigated, and the birth canals measured and examined by the hands and sometimes by the pelvimeter. Thirteen of the women were attending for the first time, and one had been at a previous clinic. In her case there was a history that in previous pregnancies the baby had died a week or two before labour; she was now coming to the clinic each week in order to have the fetal heart counted; the occurrence of any irregularity in the heart will be the signal for admission and the induction of labour; and in the meantime tonic medicines are being administered to the mother and her health watched over.

[A fortnight later this patient was admitted to the prematernity ward as she was growing weaker and suffered from grave depression of spirits; two weeks after this the fetal heart showed signs of failure, and induction was begun; most unfortunately, it was then found that she had absolutely central placenta praevia, and, although she did not lose an excessive quantity of blood, she died soon after delivery from exhaustion. The placenta was markedly diseased as well as praevia. This was the only placenta praevia lost.—Note added September 16th, 1916.]

Of the thirteen new cases, four were found to be normal in practically all respects. To them a few words of advice were spoken, to each a copy of the little green book entitled *Hints to the Expectant Mother on her Health* was given, and each was invited to return should any uncomfortable or unusual conditions develop. Amongst the nine remaining cases there were five in which the pelvis seemed on physical examination to be narrow; two of them were clearly cases for induction of premature labour, and were told to come back in a month and three weeks respectively for this. But the other three were difficult cases on which to decide, and were asked to come in the morning and to be prepared for examination under an anaesthetic. Accordingly on the following day I examined them under chloroform. One (within a few days of term), whose pelvis I found to be too contracted to permit of the delivery of a living child, I operated on by the Caesarean section within a week, and got the best result for both infant and mother. The second I found to be suitable for the induction of premature labour, and a few days later Dr. Oliphant Nicholson, the assistant physician, successfully delivered her of a living 7 lb. baby. The third, a primipara, was discovered to have a pelvis near enough to the normal to justify waiting till the supervention of pains at term.

Four cases were left. One of these women was found to have swelled feet, and a rectum so tightly packed with faeces that she was asked to wait behind after the clinic, was given an enema, and was made much more comfortable than she had been. She had no albumin in the urine and no heart trouble. Another had also swollen feet. In her case it was found that the fetal head was lying low and exercising some pressure; but since there was nothing else abnormal, and since she was near her date of delivery, she was allowed to go home. She was delivered normally a few days later and made a complete recovery. Another of the four had pulmonary phthisis as a complication of her pregnancy, and arrangements were made for suitable treatment outside the hospital. Finally, one woman stated that she had had some bleeding. No placenta could be felt, but she was taken into the prematernity ward, was thoroughly examined, and was watched. As, however, no haemorrhage recurred, and since she was anxious to go home, she was allowed to do so with instructions to return to hospital on the appearance of the slightest show. It had probably been a slight accidental haemorrhage.

The cases attending this clinic were not exceptional in any way; I have had others both much more interesting ones and more dangerous. It will be noted that there was not a single pre-eclamptic patient amongst them. For some unexplained reason eclamptic patients have been rare this summer whilst placenta praevia cases have been wonderfully common (the hospital dealt with nine in July). It was rather a large clinic of quite an ordinary kind. Yet I believe two infantile lives at least were saved, those in the case of two of the mothers who had marked pelvic contraction. In the one instance induction of labour could not very well have been postponed for a day if the child was to be saved; indeed, it weighed 7 lb., and could only be delivered by forceps. In the other case, the choice lay between craniotomy and Caesarean section, but had she, instead of coming to the clinic, appeared first after the second stage of labour was initiated, I should in all probability have had to do craniotomy. As it was, I was able to fix my time, do the Caesarean section under good circumstances, and secure a living child and a completely convalescent mother. In each of those instances the prematernity beds were useful; they were also valuable in the haemorrhage case; and throughout the whole progress of the clinic one was conscious of their presence as a means of giving treatment, long or short, slight or important, to any woman who might require it.

There was, however, good of another kind, and in another degree, accomplished by this antenatal clinic. Advice was given to fourteen expectant mothers about their own health and their coming child's welfare. Even the four who were normal went away fortified by knowledge about themselves and about the danger signals by which they were to be warned they had not possessed before; several of the others had things done for them and arrangements made which were unmistakably for their future safety and their immediate comfort.

There can be no shadow of doubt that the differentiation of the prematernity work of a maternity hospital into a special department is a valuable advance in the obstetric hospital system of the country; even the giving to the ward, the clinic, and the patients the distinctive name of "prematernity" increases the respect with which the work is viewed and carried out by residents, sisters, and nurses, and it is an immense boon to the expectant mothers to know that they are not only always welcome, but have an inalienable right to attention in the department which is so named and set aside. Both prematernity beds and antenatal clinics are of great value, but they must exist alongside of each other in a maternity hospital if their full benefit is to be secured; they and their associated means and medical and nursing staff must be welded together into a prematernity department if they are to be really helpful. The most important, the central and essential part, without which all the other parts fall short of entire success, is the prematernity ward in the hospital.

SOME PRINCIPLES OF INVESTIGATION IN BLOOD-PRESSURE PROBLEMS IN HEALTH AND DISEASE.

By JAMES M. McQUEEN, Captain R.A.M.C.(T.),
RESEARCH FELLOW OF ABERDEEN UNIVERSITY.

A study of the literature of blood-pressure measurements cannot fail to impress the reader with the lack of method shown by some clinicians in the choice and arrangement of their observations. A measurement of blood pressure—in most cases the systolic—is chosen as an item in the routine examination of the physical features of a clinical case. Let us consider what knowledge is really obtained by taking the systolic blood pressure. The information obtained is no more than that during the period of observation the systolic pressure was equal to the weight of a column of so many millimetres of mercury; it may be a high blood pressure, it may be a low blood pressure, or it may be a normal blood pressure during systole. When the systolic pressure only is estimated, the maximum height to which the pressure rises during so many beats of the heart is given, but nothing whatever is shown as to how far it sinks during diastole, nor as to the extent of the swing of pressure between each diastole and each systole of the heart. In the laboratory to record the blood-pressure changes with the maximum manometer alone would be at once recognized as futile.

In recent years some observers have added an estimation of the diastolic pressure, and by subtracting the prevailing diastolic pressure from the prevailing systolic pressure a record of the pulse pressure range is obtained. To these data they have added observations on the rate of the heart beat and the rate of the respiratory rhythm.

When this information is available we have an isolated picture of the heart's activity, and can say that each contraction of the left ventricle is able to add to the existing diastolic pressure a certain increment of pressure, that this increment of pressure delivers a shock to individual organs, for example, the kidneys; that this shock is borne by the walls of blood vessels which are already under a certain measured existing and permanent strain, the diastolic pressure.

Such measurements are complete, but a thorough knowledge is not thus attained of the circulatory phenomena involved in any disease when such observations are carefully made and carefully recorded from day to day.

The feature to be studied in the circulation in health and in disease is the power of the heart in conjunction with changes in the peripheral blood field to adapt itself quickly and efficiently to extra strain. In health every one is constantly making calls on the power of the heart and peripheral field to adjust themselves either to extra strain or to diminished strain. Consequently, although advance is made when the scope of the measurements of the clinicians is broadened from isolated measurements of systolic pressure and pulse-rate to that of systolic, diastolic, pulse pressure range, rate of heart beat, rate of respiratory rhythm, these measurements are still measurements made under the uniform conditions of repose on a bed in a hospital ward.

Physiologists appreciating this point have published observations of blood pressure before and after muscular exercise in healthy subjects. Thus Pembrey has made a series of interesting observations. Records have been taken of blood pressure before and after running and before and after the lifting of heavy weights. Such observations, though useful, are also incomplete, because they do little more than serve to show what changes have taken place in the blood pressure after the exercise is over. They vary with the power of the circulatory system to adapt itself quickly to the change from activity to repose. As all measurements take time to perform and as the circulatory system in healthy individuals has great power of rapid adaptation, the conclusions drawn from the measurements are apt to be vitiated.

Consequently if a satisfactory knowledge of the heart and peripheral circulatory system in the human subject in health and disease is to be gained, it is necessary to examine and record the changes in systolic, in diastolic, pulse pressure range, rate of heart beat, rate of respiratory rhythm, during the strain thrown on the heart by exercise, not after it is over. The systolic pressure can be estimated during exercise either by the auditory or the tactile index, but the diastolic index is estimated by the auditory index alone. Consequently it is best, perhaps, to adhere to the auditory index for both measurements. Previous to the outbreak of war I had found in Aberdeen that it was possible to get satisfactory observations of systolic pressure, diastolic pressure, rate of heart beat, and rate of respiratory rhythm in a series of medical students who kindly volunteered their services. As the auditory method is used the work done must be such that the arms of the individual tested should be reasonably rigid and that the exercise should produce as little noise as possible. The subject was placed on his back on a polished table and the exercise consisted in rhythmically drawing up his feet and legs as in swimming on the back. The mildness of this exercise depends on the length of time that it is kept up.

It was thus possible to draw graphs of the systolic and the diastolic pressure, with observations on the rate of the heart beat and the rate of respiratory rhythm during the exercise. It is true that the observations of systolic and of diastolic pressure cannot be made simultaneously, especially with increased rate of heart beat. But when such observations are numerous, and are plotted alternately over a considerable period, the importance of taking them simultaneously is practically *nil*.

Such graphs give a true picture of the response of the heart and of the peripheral system to a given amount of work over a given period of time. We can trace how the circulation as a whole adapts itself to the changed conditions.

It is also possible to examine the circulatory phenomena during exercise in the erect posture by the auditory method. The exercise employed was the working of a heavy but silent lathe with one foot. Such graphs enable us to see how the heart adapts itself to gravity and to exercise simultaneously, and from such graphs the efficiency of the mutual adjustments of the heart and of the vasomotor system can be tested.

The ranges of blood pressure, both systolic and diastolic, in healthy and in unhealthy subjects vary greatly. It is obvious, then, that the response to a given amount of work of normal adults with a blood pressure of, say, 130 systolic, 75 diastolic, and a rate of heart beat, say, 78, should be investigated. Having established the normal graphs, the investigation should be carried on cautiously to people with abnormal systolic and diastolic pressures. By so doing we may learn to appreciate what is the real significance of any abnormal blood pressure range.

Translating these problems into more concrete form, we may ask how a subject, whose diastolic pressure is originally high, fares when tackling a given amount of work. We know that, theoretically at least, he starts with the disadvantage that a considerable amount of cardiac energy in excess of the normal has to be spent in opening the aortic valve. Or we may take the case of aortic incompetence with initial high systolic pressure and initial low diastolic pressure, and ask what series of blood pressure changes take place during exercise. Does such a case develop during exercise a high diastolic pressure in spite of incompetent valves? I put these questions simply to show that in the whole of the literature of blood pressure we have no guide to the true significance of blood pressure ranges which depart from the normal. We have never isolated these departures from the normal and tested them against the performance of a given carefully graduated amount of work. We do not know how Nature has adapted both the heart and the peripheral circulatory system to overcome initial defects. We may state that breathlessness on exertion is a cardinal symptom, but has the case developed this breathlessness on exertion because the heart has failed or because the adjustments his peripheral circulatory system can make are inadequate?

Enough has been said to show what problems await solution. But by the method of graphs taken during exercise, with the exercise carefully graduated so as not to be injurious in diseased conditions, we may hope to learn something of what is meant by vague terms such as "circulatory equilibrium is restored."

It should be clearly understood that until we know the significance of various levels of pressure, systolic and diastolic, with various rates of heart beat and respiratory rhythm, a mere chronicling of measurements in countless clinical lectures is without significance.

I have carefully refrained from stating what were the results of the investigation made by this method on healthy students because the war has prevented me from checking and rechecking the observations. Enough was accomplished to show me that the method was useful, and that further experimental methods could be applied to it, such as varying the mixture breathed and the temperature of the surroundings. Consequently the influence of such factors as are involved in ventilation problems could be examined.

SEPTIC ENDOCARDITIS: INTRAVENOUS INJECTION OF EUSOL: RECOVERY.

BY

J. ALLMAN POWELL, M.D.,

CHELTENHAM.

THE following case, in which recovery from what seemed to be a hopeless condition followed the intravenous injection of eusol, is worthy of record.

A girl of 13 developed erysipelas of the right foot on December 17th, which spread halfway up the shin and disappeared in a week.

On January 6th a systolic murmur could be heard over the precordium, which was considered to be pericardial in origin; it was accompanied by slight pain. Under treatment with sodium salicylate and bromide, the pain and murmur disappeared by January 25th, and the patient was apparently making an uneventful recovery.

On January 28th she had a severe rigor, with sudden dyspnoea and intense precordial pain, accompanied by hacking cough, with a small quantity of sticky mucus. Scattered crepitations were to be heard over both sides of the chest at the back. The temperature was 102°, and the pulse 166. A diagnosis of ulcerative endocarditis with pulmonary embolus was made.

On January 29th the temperature was 103°, the pulse 146, and she had a slight rigor; 25 c.cm. B. and W. antistreptococcal serum (ulcerative endocarditis) was given hypodermically. The temperature fell to normal within twelve hours, and her general condition was much improved.

The improvement was maintained for a week, but on February 8th the pulse and temperature began to rise, and her general condition was not at all good.

On February 11th there was a rigor; the temperature was 103°, the pulse 148, and there were pain, tenderness, and swelling of the left elbow. A profuse petechial septic rash appeared on the legs and rapidly spread over the body, and a bedsore formed.

On February 12th the serum was repeated (50 c.cm.).

On February 13th, 14th, and 15th, the temperature was

normal but the pulse was rapid and dicrotic, and the general condition growing progressively worse. The skin was smothered with the septic rash.

On February 14th a large subcutaneous haemorrhage appeared in the left iliac region, possibly caused by an embolus which lodged on February 11th at the time of the rigor. Vulvitis also developed.

Dr. Hebblethwaite saw her in consultation on February 15th. The iliac haemorrhage then seemed to be breaking down. The patient was very bad and appeared to be in a hopeless condition. We considered that she was suffering from a virulent infection of the blood stream and that vaccine could not possibly do any good. As a last resort we decided to give her eusol intravenously as used by Captain John Fraser, R.A.M.C., and Captain H. J. Bates, R.A.M.C., for the toxaemia of gas gangrene, as reported in the BRITISH MEDICAL JOURNAL of January 15th, 1916.

On February 16th 40 c.cm. of eusol were given intravenously preceded by 300 c.cm. of normal saline. Her condition at the time of the injection was much worse than on the preceding day. She was semi-delirious, the pulse was weak and thready; there were sordes on the lips, and she was apparently dying.

After the injection she perspired freely, and an hour later she had another rigor, but that night she slept well without a sleeping draught for the first time for three nights. The next day the pulse was much improved in quality, and her general condition was distinctly better. She steadily improved from that time on; by February 20th the bedsore was almost healed, the vulvitis had gone, and the rash was rapidly fading. She was sleeping well, and her appetite was returning.

On February 24th the iliac haemorrhage broke down, leaving an ulcer which was unresponsive to boric fomentations but cleared up after local treatment with eusol. The rest of her recovery was uneventful except for occasional slight rises of temperature.

She came to see me on June 15th, when she was apparently well except for some rapidity of the pulse and anaemia.

No blood culture was made, so the diagnosis was not proved, but clinically the case was typical of an acute sepsis of the blood stream.

The action of the serum was interesting. The first dose seemed to do a great deal of good, and apparently checked the course of the disease for some days. The second dose brought the temperature down, but did not improve her condition; in fact, she got rapidly worse.

At the time of the intravenous injection she had numerous crepitations over both lungs at the back; they did not seem to be increased by the injection, and disappeared in a few days. She was getting progressively and rapidly worse up to the time of the injection, and was apparently moribund when it was given. She improved rapidly and steadily after it, and I have no doubt whatever that it saved her life.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

"SLING ATROPHY" AND KINDRED DISABILITIES.

IN the EPITOME OF CURRENT MEDICAL LITERATURE (June 10th) a note is published on "Sling atrophy of the arm" by Rochard and Stern. I would like to call attention to a similar condition in the lower limb.

Paralysis of the tibialis anticus and of the everters of the foot is frequently observed after some injury, such as a "crush" to the ankle, which has not seriously injured either the muscles or their nerve supply. On examination a month after the injury there may be no pain and all passive movements may be reasonably free. Although failure to support the foot in a dorsiflexed and everted position may be a contributing cause, the paralysis or paresis may occur even when this precaution has been observed. The lack of voluntary power seems to be due to some peculiar blending of physical and mental causes, the exact pathology being obscure.

The electrical reactions of the muscles concerned are, after this lapse of time, normal, or nearly so. The patient should be shown that all the movements of the foot can be produced electrically, and encouraged to try to produce them himself. These efforts on his part should synchronize with the artificial stimulus, the strength of which must be gradually reduced as his control increases. Daily treatment for two to three weeks will generally restore voluntary power. The exceptions are patients with hysterical tendencies, with regard to whom prognosis should always be guarded. In general, however, a speedy and complete recovery may be looked for in the absence of any demonstrable physical lesion; but some patients, unless specially urged and encouraged, will not make any effort to move the foot even though a relaxation splint, massage, and electricity may have perfectly restored the muscles from a mechanical point of view.

Once a state of physical normality has been reached—which will be in from two to eight weeks, according to the severity of the original injury—continuance of electrotherapy, etc., will do positive harm unless there is definite sign of returning voluntary power. The patient's re-education must be taken in hand with considerable vigour. He should be allowed to walk about with an elastic support to his boot to prevent foot drop. It will generally be found, on holding the foot in a posture of extreme dorsiflexion, that he can cause the tendon of the tibialis anticus to tauten and slacken, even though he cannot at all hold his foot in position. In very bad cases even this movement may be lacking; it must then be patiently elicited. This is best done by holding both feet in the same position, and getting the patient to try to move both tendons in unison. Tapping the muscle lightly with the finger-tip will often give the required impetus. By some means or another this very modest accomplishment must be acquired if the case is to get well, for it is the starting point of all else. The movement should be performed rhythmically for some minutes several times a day, care being taken, however, to avoid fatigue. Much patience is necessary; any manifestation of irritability on the part of the teacher may be fatal. The next step is to get the patient to hold the foot momentarily in position while the supporting hand is withdrawn. Finally, active dorsiflexion is essayed, but this should not be until the patient has learned to hold his foot in position for two to three minutes without difficulty.

The above procedure is seldom needed in early cases. If called for, it is in them nearly always successful. When, however, a patient has been treated for many months by elaborate physico-therapeutic methods, he becomes unconsciously, if not consciously, imbued with the idea that he is incurable. Re-education on the lines above described can now alone do any good, and his restoration is likely to be a matter of months rather than weeks. Moreover, it is only possible at all provided that his confidence can be gained, and that he is willing to face cheerfully the probably long course of treatment. Unfortunately this type of patient is generally, and not unnaturally, anxious to escape from the hands of the doctors; and if a man so affected, who has already spent much time in hospitals, has set his heart on getting out of the army, it is quite useless to waste time on the case.

Hypnotism is sometimes of great value, but six months' unsuccessful treatment may produce a fixed idea, even in a man both mentally and physically robust, which requires for its removal a depth of hypnosis only occasionally obtained.

London, W. FRANCIS HERNAMAN-JOHNSON.

TRISMUS DURING SERUM SICKNESS.

IN the BRITISH MEDICAL JOURNAL of August 12th, 1916, there is an account of this condition by Captain Bolt, R.A.M.C. The symptoms are so disquieting to the medical man in charge of such a case that I record a somewhat similar experience in the hope that further records may show to what extent such occurrences are frequent.

About two years ago I had to treat a case of puerperal fever due, I believe, to severe periodontal disease. The confinement was terminated by instruments. On the next day the temperature began to rise, and reached 104° F. on the third and fourth days with one or more rigors; 10 c.cm. of polyvalent antistreptococcic serum were given, and the uterus explored. A portion of placenta was found, and a swab taken from the interior of the uterus, which yielded on cultivation a pure growth of streptococci from which a vaccine was prepared.

Twenty more c.cm. of serum were administered with the vaccine with most satisfactory results, when a painful condition of the muscles of the neck supervened, with difficulty in opening the mouth. This disagreeable symptom increased till only the spout of a feeder could enter the mouth. There was no rash, or other symptom of serum poisoning, and in forty-eight hours the spasm of the jaw disappeared, during which time 5-grain doses of chloretone had been given every four hours.

Sevenoaks. JAMES E. BLOMFIELD, M.D.

Reviews.

THE CRIMINAL IMBECILE.

IN his essay on *The Criminal Imbecile*[1] Mr. H. H. GODDARD describes and analyses three American murder cases in which the criminals were imbeciles, adolescents, or adults with the mental development of children. Mr. Goddard distinguishes clearly between the criminal who knows that he is doing wrong when he commits his crime, and the imbecile or feeble-minded person who is mentally incapable of recognizing that any action he may commit is wrong. The criminal is responsible for what he does, the imbecile is not responsible, yet the law is apt to pass sentence of death on both when they are proved to have committed murder. Mr. Goddard argues that this is an injustice, and that the imbecile murderer should be condemned to no more than imprisonment for life. The first of the murders narrated by Mr. Goddard was committed by a boy of 16, whose intelligence, measured by the Binet-Simon tests, was that of a ten-year-old child. In the second case, which was particularly abhorrent in its details, the murderer was aged 19, but had the mentality of a boy of 11. The third murderer, aged 24, was pronounced sane but of low mentality by two expert alienists; examined by a psychologist who used a modification of the Binet tests, he was found to have the mental development of a child of 9. The weak-mindedness of these three murderers could have been recognized in their childhood, and according to Mr. Goddard it should have been recognized that they were mental defectives, and therefore, as he contends, potential criminals. Had this been done, they could have been guarded and watched and saved from an environment that would lead them irresponsibly to prey upon their fellows. He goes on to point out that at least two-thirds of mental defectives have inherited their defect, and belong to strains of the human family whose intelligence lies below that required for the performance of their duties as citizens. He suggests segregation or sterilization as methods for preventing the propagation of these strains, and concludes that feeble-mindedness as related to crime may be exterminated in a few generations if we set our minds to the task. The book is clearly and, on the whole, temperately written, and profoundly interesting to all concerned in the welfare of the submerged tenth with its crowd of imbeciles and criminals.

PHYSIOLOGY.

PROFESSOR HOWELL'S excellent college *Textbook of Physiology*,[2] first published ten years ago, has now reached its sixth edition—a striking testimony to the favour with which the volume is regarded by students of physiology, particularly in America. The difficulty of keeping the successive editions of a general textbook such as this up to date must be enormous; indeed, the task could only be undertaken with any prospect of success by a teacher in constant touch with the students he has to instruct, on the one hand, and with the enormous literature of the subject on the other. Professor Howell's method in writing the book has been to give the evidence, experimental or other, that bears on the question he is discussing, and to present it to the reader without any particular bias; at the same time, he emphasizes those conclusions that seem to him to be most justified by experiment and observation. A number of references to the recent literature are given, and occasional historical summaries are inserted where they appear to be of particular interest. The text is relieved by a number of well-chosen illustrations, many of them old friends. The book is divided into nine sections, in which the physiology of the chief systems of the body is discussed. Speaking generally, the author gives his physiology forth in the form of a literary *précis*, well digested, thoroughly sound in doctrine, and consisting of the conclusions reached rather than the methods and results on which those conclusions have been based. In consequence the text is easy reading; the book appears more suitable for advanced and thoughtful students than Kirkes' admirable textbook with its insistence on mechanical detail and fact, and at the same differs greatly from Professor Starling's textbook of physiology, with its wide views and laboratory atmosphere. Each of these three works is of first-class excellence, and each will make its chief appeal to students of a different class and with a different intellectual appetite. We can commend Professor Howell's to all medical students and practitioners in search of a trustworthy and up-to-date manual of physiology.

The existence of little books from which the misguided student may hope to cram sufficient knowledge to pass his examinations appears to be a necessary evil, rendered inevitable by the examination system from which medical men have all been sufferers in their time. The little books to which we refer are fundamentally faulty, because they attempt the impossible. They must be short, and they must be loaded with facts; hence they inevitably become catalogues taxing the memory, and are unable for want of space to make any demands on the reasoning powers or the intelligence of their readers. The student who trusts to them converts himself into an automaton, and is likely to be at a loss if he is asked a question demanding a little thought, and not directly answered by his cram-book. An excellent book of this class, entitled *Aids to Physiology*,[3] has recently been published by Drs. TAIT and KRAUSE, crowded with facts, unblemished by explanations, and diversified by the use of varieties of type to bring the important points into prominence. It contains, apparently, no reference to the pineal body; "ametropia" should be spelled with only one "m" (p. 219); the symbol of the element fluorine is F, not Fl (p. 4). It may be doubted whether many physicians would agree with the statement (p. 85) that "Suprarenal extract is used for its astringent and haemostatic action in hay fever, and in Addison's disease."

The nineteenth volume of the *Collected Papers* of the Institute of Physiology of University College, London,[4] edited by Professor STARLING, contains twenty-one papers on various physiological subjects, published in either the *Journal of Physiology* or the *Biochemical Journal* in 1915 or 1916. Many of these papers are of no little interest to medical men. Thus, an article by Professor F. A. Bainbridge on the influence of venous filling on the rate of the heart shows that the reflex acceleration of the heart which is brought about by increasing the supply of venous blood to the right auricle is caused by a rise of venous pressure sufficient to raise the diastolic pressure and to dilate the heart. This reflex mechanism must play a part in the quickening of the heart's action during muscular exercise; it also explains why the fatigued heart is a rapidly acting heart. Marey has shown that the pulse-rate tends to vary inversely with the arterial pressure, within limitations: the relation between a rise of venous pressure and the pulse-rate is more constant, and, it may be added, more important. A paper by Y. Kuno on the significance of the pericardium—a problem investigated in 1898 by Barnard—proves that opening the pericardial sac causes a fall in venous pressure, a rise of arterial pressure, and an increase of the heart's output by as much as 25 per cent. When, however, the work of the heart is raised to a maximum, that organ always suffers injury in the form of haemorrhages or valvular insufficiency if the pericardium is open, and it appears that the right ventricle gives out before the left. So long as the venous pressure remains low the function of the heart is improved by opening the pericardium. But in normal life the heart is often called upon to increase its output and do extra work, and so the existence of the pericardium is necessary for its unimpaired working day by day, to prevent acute dilatation. It will be remembered that Barnard found the heart to rupture under a pressure of one atmosphere or less, while the pericardium was inextensible and able to withstand a pressure of 1½ or 1¾ atmospheres. A paper by Y. Kuno on the pulmonary circulation goes to show that the circulation through the lungs is increased by an

[1] *The Criminal Imbecile: An Analysis of Three Remarkable Murder Cases.* By H. H. Goddard, Director of Department of Research, Vineland Training School, New Jersey. New York: The Macmillan Co. 1915. (Demy 8vo, pp. 163; 3 illustrations. 6s. 6d. net.)

[2] *A Textbook of Physiology for Medical Students and Physicians.* By W. H. Howell, Ph.D., M.D., Sc.D., LL.D. Sixth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Med. 8vo, pp. 1043; 307 figures. 18s. net.)

[3] *Aids to Physiology.* By J. Tait, M.D., D.Sc., and R. A. Krause, M.D., D.Sc. Students' Aid Series. London: Baillière, Tindall, and Cox. 1915. (Fcap. 8vo, pp. 242; 52 figures. Cloth, 3s. 6d. net; paper, 3s. net.)

[4] *Collected Papers; Institute of Physiology, University College, London.* Edited by E. H. Starling, M.D., F.R.S., F.R.C.P. Vol. xix. 1914–15. (Med. 8vo.)

increase in the respiratory excursion; he was unable to solve a question of great interest in pneumothorax—namely, Is the circulation increased or diminished in the collapsed lung? but is inclined to think that it is lessened. A paper by Dr. S. Okada on the secretion of bile, a matter that has often been investigated before, shows that there is little difference between diets of bread, butter, and meat, so far as the biliary secretion is concerned, during the first six or seven hours, if those substances are administered in quantities of corresponding heat value. Starvation diminishes the secretion of bile, while white of egg, fat and oil, soap solution, acids (here the action is very marked), Witte's peptone, and Liebig's extract of meat increase the secretion, though the bile is more dilute; cane sugar, starch, water, and sodium bicarbonate produce little or no effect. Among drugs, sodium salicylate and chloral hydrate produced a considerable increase in the flow of bile; salol, cream of tartar, and large doses of alcohol a smaller increase. Nicotine caused an inconstant increase of secretion. Dr. Okada also concludes that during digestion there is an increase in the force of the rhythmic contractions of the gall bladder, and he finds that while the reaction of bile from the gall bladder is variable, acid, neutral, or alkaline, that coming from the liver is alkaline; corresponding in alkalinity with the pancreatic and intestinal juices. Professor Starling is to be congratulated on the varied excellence of the work done by his pupils, as illustrated by the papers collected in this volume.

In his small textbook of *Physiology for Nurses*,[5] Dr. DRUMMOND gives a straightforward account of the principles of the science, with a little anatomy thrown in here and there. There are eighteen chapters and an appendix; over eighty illustrations, mostly borrowed from standard works, are reproduced with varying degrees of success. The author writes clearly in pedestrian style, perhaps assuming in his readers more knowledge of general chemistry and physics than most nurses possess. If it is difficult to write a good elementary textbook of any science, it is many times more difficult to write one that is interesting and readable.

ANATOMY.

MOST students of anatomy are aware of the debt anatomists owe to the careful observations of German investigators. Nevertheless it is somewhat remarkable that at the present time a book should be published in the Australian Commonwealth on practical anatomy by a distinguished teacher which is frankly designed and intended to be used with Spalteholtz's handatlas of the anatomy of man. Professor RICHARD J. A. BERRY,[6] the teacher referred to, tells us in his preface that the planning and preparation of this book have occupied many years. It must therefore be counted as a great misfortune for him that the publication should coincide with Armageddon and with the attempt of Germany to seize the mastery of the world. The very purpose, indeed, of Professor Berry's leisurely and careful labours is thereby rendered most difficult, if not impossible of attainment. Let us state without any further delay that this textbook of *Practical Anatomy* in three volumes, however valuable from the descriptive point of view—and as we shall show later it is a most careful and accurate work—contains no illustrations. But, as we previously noted, the work, like Krause's *Handbuch* of the anatomy of man, is intended to be used with Professor Werner Spalteholtz's *Handatlas der Anatomie des Menschen*. As this atlas contains more than 1,000 illustrations it is clear that if the student can provide himself with either an English or a German edition of Spalteholtz—and either, says Professor Berry, may be used with equal facility by an English-speaking student, as all the plates are lettered in B.N.A. Latin—the work now under review is in reality the most freely illustrated manual of practical anatomy obtainable. The references to the illustrations are appended throughout on the margins of the page, and always refer to the figure in Spalteholtz, and not to the page. It will be obvious, therefore, that for the satisfactory prosecution of his studies in human anatomy, with Professor Berry's book as his guide, the student must also possess the Spalteholtz atlas. Is the student in this country and in the Dominions overseas likely to be attracted by such a scheme? and are the teachers of such a mind that they can freely recommend it? Apart from the undesirability of having to use an alien publication, some of the teachers seem determined to have nothing to do with the Basle terminology or with any "hand atlases" committed to its perpetuation. However, there are students who are more or less independent of illustrations, who possess powers of observation and of examination to an unusual degree, and to such we can most strongly recommend the book. It is a monument of industry, carefully and accurately carried out on an admirably arranged plan; indeed, Professor Berry seems to us to have succeeded in writing a book for which there is a demand—a book which falls somewhere between a mere practical anatomy guide and a large textbook. It contains more than descriptions of dissections, and yet is not overburdened with the enormous amount of detail usually found in larger books. We have therefore no hesitation in recommending—with a warning as to the absence of illustrations—this work as a most satisfactory guide to the dissection of the human body, and we hope that Professor Berry will at some future date find an opportunity to publish a small atlas of illustrations to go with it.

Gray's Anatomy,[7] which now appears in its nineteenth edition, first saw the light nearly sixty years ago. A book which through all these years has kept its position in the front rank of anatomical textbooks must have great merits. The work has always been noted for its clear and accurate text, for its bold and simple illustrations, and for the wise judgement of its editors, who have all exhibited a studied moderation in the size to which they have permitted the book to grow. All these features are well combined in the present edition. While it is only half the size of Quain's *Anatomy* and three-quarters the size of Cunningham's *Anatomy*, it yet contains all the anatomical information which any but a professed anatomist will ever require. The student will, we think, be well advised, particularly in these days of the crowded curriculum, who selects it for his study in preference to the more voluminous textbooks. The present edition has again been entrusted to the very capable hands of Professor HOWDEN, who has had the collaboration of Dr. A. J. Jex-Blake and Mr. W. Fedde Fedden in the section dealing with applied anatomy. The work is well up to date both as regards text and illustrations.

NOTES ON BOOKS.

SIR EDWARD SCHÄFER'S *Essentials of Histology*, first published in 1885, has now reached its tenth edition,[8] and is, as it has been for a quarter of a century, a book that is indispensable to the medical student. For the convenience of those who use it the text is divided into fifty lessons or chapters; each lesson may be supposed to occupy from one to three hours, according to the amount of the work actually done by the student. Only those histological methods are recommended upon which dependence can be placed, a matter in which the author's great experience both as a teacher and a histologist can be thoroughly trusted. It is hard to find anything new to say in praise of so sound and well-established a textbook as this; the tenth edition is a little larger than the ninth, and contains many additional illustrations, while the text has been completely revised. A word of praise may be given to the publisher, who has surmounted with no little success the many difficulties with paper, printing, binding, and illustrating, from which all publishers must now be suffering acutely.

[5] *Physiology for Nurses.* By W. H. Drummond, M.B., C.M., F.R.C.P.Edin. London: E. Arnold. 1916. (Cr. 8vo, pp. 210; 81 figures. 2s. 6d. net.)

[6] *Practical Anatomy.* By R. J. A. Berry, M.D.Edin., M.D.Melb., F.R.S.Edin., F.R.C.S.Edin., Professor of Anatomy in the University of Melbourne. Vol. i., Superior Extremity; Inferior Extremity. Vol. ii, The Thorax and Abdomen. Vol. iii, The Head and Neck, Organs of Special Sense, and the Central Nervous System. Melbourne: Sydney, Adelaide, and Brisbane: G. Robertson and Co. 1916. (Med. 8vo, pp. 428, 402, and 513.)

[7] *Anatomy: Descriptive and Applied.* By H. Gray, F.R.S. Edited by R. Howden, M.A., D.Sc., M.B., C.M. Revised by A. J. Jex-Blake, M.A., M.D.Oxon., F.R.C.P.Lond., and W. Fedde Fedden, M.B., M.S. Lond., F.R.C.S. Nineteenth edition. London: Longmans, Green, and Co. 1916. (Roy. 8vo, pp. 1320; 143 figures. 32s. net.)

[8] *The Essentials of Histology, Descriptive and Practical, for the Use of Students.* By Sir E. A. Schäfer, M.D., Sc.D., LL.D., F.R.S. Tenth edition. London: Longmans, Green and Co. 1916. (Med. 8vo, pp. 574; 720 figures. 10s. 6d. net.)

The first volume of the *Medical Clinics of Chicago*[9] has now been completed by the publication of its sixth bi-monthly part. This periodical consists of transcripts of clinical demonstrations of medical cases, held at hospitals in and about Chicago before post-graduate audiences. The contributors are fourteen in number; each has contributed from one to twenty expositions, and the cases selected cover a great deal of the ground of internal medicine. Illustrations are given where they seem desirable, and there are some excellent coloured plates in the volume. The text is easy reading, the medicine taught is practical and to the point. These *Clinics* should be of service to practitioners who have forgotten much of what they learnt as students at the bedside.

The war demands service from all of us. Dr. T. N. KELYNACK has endeavoured in his book *Pro Patriâ*[10] to provide an authoritative directory to the chief societies, associations, institutions, and agencies that are rendering service to the nation, the fighting forces, and the individual. It should be consulted as a book of reference by the countless workers engaged in war work or patriotic labour of any kind, public authorities, administrators of all sorts of relief work, and philanthropists who do not wish to see their time or money misapplied in the cure of hardships due to the war. The book begins with a number of original communications on various subjects, and some dozen messages and short communications relating to patriotic war service. These more stirring and flamboyant pages introduce the reader to the solid and convincing exposition of the aims and work of the countless associations, new and old, that are rendering public and personal service at the present time. Valuable records, reports, and memoranda are given later in the volume, and there are useful appendices and indexes. The editor has done his work efficiently, and has succeeded in bringing together a great deal of useful information that could not be found elsewhere by the ordinary reader or the seeker after facts. We recommend the book to all those whom it is designed to assist.

[9] *The Medical Clinics of Chicago.* May, 1916. Vol. i Nos. 2-6. Philadelphia and London: W. B. Saunders Co. 1916. (Med. 8vo, pp. 209-1273. Per year, illustrated, cloth, 50s net; paper, 35s. net.)

[10] *Pro Patriâ: A Guide to Public and Personal Service in War Time.* Edited by T. N. Kelynack, M.D. London: John Bale, Sons, and Danielsson, Limited. 1916. (Cr. 4to, pp. 278; illustrated. 3s. 6d. net.)

AUXILIARY R.A.M.C. FUNDS.

SIR ALFRED KEOGH, K.C.B., D.G.A.M.S., presided over a meeting at the Royal Army Medical College on August 7th, when about thirty officers of the Auxiliary R.A.M.C. Forces were present.

Sir Alfred Keogh said that the meeting was called to consider the replies to a circular containing the scheme which had been sent to all units at home and in France. The replies disclosed the fact that the very large majority were in favour of the establishment of Auxiliary R.A.M.C. funds for benevolent and relief purposes.

The Secretary, Lieutenant-Colonel Davie-Harris, said that of the replies from individual officers of the Auxiliary R.A.M.C., 92 per cent. were in favour of the proposal and only 8 per cent. against it. Various suggestions had been made, which he enumerated, adding that the proposal for a loan fund was seldom alluded to in the replies.

The scheme was adopted with the omission of the words, "orphans of officers who are non-subscribers to the funds shall have no claim to its benefit." Sir Alfred Keogh was elected president of the Funds, and, after some discussion, it was resolved to appoint six vice-presidents and a committee of twenty, and that the president and vice-presidents should be *ex officio* members of the committee, which was given full power to put the scheme into execution and to administer the funds. The administration has been constituted as follows:

President: Surgeon-General Sir Alfred Keogh, K.C.B.
Vice Presidents: Surgeon-General Sir A. Bowlby, K.C.M.G., C.B., Lieutenant-Colonel Sir Alfred Pearce Gould, K.C.V.O., Surgeon-General Sir G. H. Makins, K.C.M.G., K.C.V.O., Lieutenant-Colonel Sir Berkeley Moynihan, Colonel Sir Frederick Treves, Bt., G.C.V.O., Lieutenant-Colonel Sir Almroth Wright, F.R.S.
Committee: Lieutenant-Colonel H. G. Barling, Colonel Sir J. Rose Bradford, K.C.M.G., C.B., Lieutenant-Colonel W. Collier, Major A. C. Farquharson, Colonel Sir James Kingston Fowler, K.C.V.O., Lieutenant-Colonel H. P. Hawkins, Colonel Culver James, Major H. H. Littlejohn, Colonel D. J. Mackintosh, M.V.O., Major Ewen Maclean (Chairman), Lieutenant-Colonel C. W. Mansell Moullin, Major D. W. Patterson, Major G. Newton Pitts, Lieutenant-Colonel W. Pasteur, Captain R. J. Stirling, Surgeon-Colonel Atwood Thorne, V.D., Colonel H. H. Tooth, C.M.G., Lieutenant-Colonel F. H. Westmacott, Lieutenant-Colonel W. Hale White, Lieutenant-Colonel G. Sims Woodhead.
Secretary: Lieutenant-Colonel F. W. H. Davie-Harris, 124, Victoria Street, S.W. *Bankers:* Messrs. Holt and Co., 3, Whitehall Place, S.W.

The following circular letter has been addressed to all auxiliary R.A.M.C. officers, inviting them to become subscribers to the Officers' Benevolent Branch:

OFFICERS' BENEVOLENT BRANCH.

Dear Sir,

I am desired by the Committee to bring to your notice and to invite you to become a subscriber to the Officers' Benevolent Branch of the above funds. It has been instituted for the purpose of affording relief to orphans of officers who have served during the present war in one of the three auxiliary branches of the R.A.M.C.—namely, the Special Reserve, the Territorial Force, or the New Armies.

The primary object of the Officers' Benevolent Branch is to assist in the education and starting in life of those orphans who stand in need of such help, owing to their fathers having died without having made sufficient provision for their families.

A similar fund has existed in the Regular R.A.M.C. since 1820, and has proved of great benefit.

The Committee hope that all auxiliary R.A.M.C. officers will feel it their duty to support this Benevolent Branch with a view of assisting the orphans of their brother officers in the corps and ask all either to give a substantial donation to start the fund, or to become annual subscribers, and if possible to do both.

They would especially appeal to those officers whose military duties do not prevent them from carrying on their own practices.

The minimum subscription is one guinea, this gives the subscriber a vote at the annual meetings; but many donations varying from five to fifty guineas, and subscriptions up to five guineas have already been received.

It should be observed that the (*b*) Relief Branch for the dependants of the rank and file is entirely separate from the Officers' Benevolent Branch financially, though administered by the same Committee.

A banker's order is attached which you are urgently invited to sign and to return to me at the above address.

Yours truly,
F. W. H. DAVIE-HARRIS, Lieut.-Colonel,
Secretary.

124, Victoria Street, Sept. 8th, 1916.

RELIEF FUND.

A circular letter has also been sent to all officers commanding R.A.M.C. units at home and abroad, asking for grants from regimental institutes to a relief fund formed on the lines of the R.A.M.C. General Relief Fund, to afford relief to the widows and orphans of the rank and file of the Auxiliary R.A.M.C. Forces. The letter points out that nearly all the Regular R.A.M.C. are now serving abroad; that the companies and other units R.A.M.C. now at home consist almost entirely of the auxiliary branches; that consequently the profits which are now being made by the regimental institutes are, to a very great extent, made from auxiliary troops; and that it is therefore only right that they should benefit considerably from these profits.

We are informed that, judging from the donations already received from officers for the Benevolent Branch and the grants received from units for the Relief Branch, there can be little doubt that the new auxiliary funds will be successful.

THE sixty-seventh annual meeting of the American Medical Association was held at Detroit from June 12th to the 16th. The report of the secretary, Dr. Alexander R. Craig, stated that the fellowship on May 1st, 1915, was 42,366; the number on May 1st, 1916, was 43,181—an increase for the year of 815. In his presidential address Dr. Rupert Blue, Surgeon-General of the United States Health Service, said that the great lesson of the European war for the United States was to prepare the medical and sanitary forces in time of peace, both in the army and in the navy. The question of health insurance was coming to the front, and would probably constitute one of the next great steps in social legislation. Closely allied to that was the study of industrial hygiene—the problem as it related not only to the workshop and factory but also to the home. Rural sanitation was of even greater importance, and the next great point of attack against infectious diseases was in the small town and village. That required the sanitary enlightenment of the country resident and adequate State and local health organizations. The coast defence against the importation of disease from abroad was adequate; what must now be done was to control those diseases which were already with them. For this the qualified health officer and an educated public were required. Dr. Charles Horace Mayo, of Rochester, Minnesota, was elected president for 1917. His elder brother, William J. Mayo, was president in 1906. The total registration was 4,586, the third largest on record.

British Medical Journal.

SATURDAY, SEPTEMBER 23RD, 1916.

THE MILITARY HEART HOSPITAL, HAMPSTEAD.

AT the present time great interest and importance attach to the prognosis and treatment of certain forms of cardiac disease in soldiers. For want of exact knowledge as to their ailment many of the sufferers have been classed as cases of D.A.H., or disorderly action of the heart, or as cases of "irritable heart" or "soldier's heart." Such diagnoses are lacking in precision. A paper by seven authors, printed on page 418 of this issue of the BRITISH MEDICAL JOURNAL, shows what is being done at the new Hampstead Military Hospital, with its three fully equipped and independent services of fifty beds, to classify these patients, and to determine their fitness for duty. The seven authors base their paper upon the 251 men who have passed through their hands and have left the hospital. These patients were first sifted by physical examination. This showed that 113 of them had definite valvular or myocardial disease; they were accordingly discharged from the army within a few weeks of their admission. Certain physical signs to which many practitioners are apt to attach importance were disregarded in this preliminary sifting as of little or no value. These signs include extra-systolic or respiratory irregularity, acceleration of the heart's action, diffusion or jerkiness of its impulse, a short apical systolic murmur, and systolic murmurs in the aortic or pulmonary regions. The first sifting thus got rid of 35 or 40 per cent. of the patients. The remaining 60 or 65 per cent. next underwent a second sifting by means of continuous and special observation. Mainly, these are cases of "irritable heart," men with symptoms of functional derangement of the heart, but no clear signs of organic disease in that organ; a few were shown by the second sifting to have organic heart disease.

It is the cases of "irritable heart" that give rise to difficulty in prognosis, and at the Hampstead Hospital they were placed on a routine of carefully graduated exercises designed to eliminate the cardiac unfit. The exercises were selected from the code of army exercises and were directed by a sergeant-major instructor. Constant supervision was maintained and the amount of exercise increased or diminished according to the needs of each, the patient's appearance, colour, breathing, heart-rate, and subjective symptoms being all taken into consideration. As the patients improved more and more work was done, drill being varied with route marches; it was found that this line of treatment was very valuable from the therapeutic point of view, and that in no instance was any harm done. In favourable cases the man could finally be returned fit for duty; in others he was marked as fit for light duty at home; where the patient showed continued distress in the lowest grades of exercise he was discharged from the army as permanently unfit. It was found that about two months were needed to determine to which category a patient belonged. The greater the duration of the symptoms of "irritable heart," the worse the prognosis seems to be; few of those giving a history of rheumatic infection or chorea —some 19 per cent.—became fit to return to full duty.

Elaborate studies have failed to bring to light any rapid yet trustworthy method of eliminating the unfit. The least unsatisfactory test was found to be the rate at which the pulse-rate falls after a brief and brisk exercise, such as going smartly down and up a flight of twenty stairs. If the pulse fails to return to its original rate within two minutes of this, the patient will only rarely reach a high-grade physical exercise. The converse, however, does not hold good. It is of interest to note that a similar conclusion has been reached at the National Hospital for Diseases of the Heart, to which doubtful cases are sent from recruiting centres for an opinion. Here the failure of the pulse-rate and blood pressure to return to their former level three minutes after exercise has been regarded as an unfavourable sign; yet many who were obviously unfit have been found to give an almost normal reaction in this respect. At the Hampstead hospital the best results have been obtained among the men who have broken down in health on active service; nearly half the patients with "irritable heart" gave a history dating back prior to enlistment. It would be interesting to know how far arterio-sclerosis can be invoked to account for the "irritable heart" of young subjects like most of the patients considered in the paper of Dr. Lewis and his collaborators. At the National Hospital the two conditions appeared to be associated in a certain percentage of the recruits sent up for examination. Perhaps it is the case that a man with early arterio-sclerosis is likely to develop cardiac irritability under the strain of active service. To what extent may the use of tobacco be held a factor in its appearance? We look forward with interest to further clinical and scientific communications on the subject of "irritable heart" from Dr. Lewis and his colleagues.

OPERATION FOR EMPHYSEMA.

IN 1858 W. A. Freund, an assistant in the obstetrical clinic at Breslau, described a variety of emphysema of the lungs with dyspnoea which he considered to be secondary to rigidity and ossification or calcification of the costal cartilages. In 1859 he proposed, logically enough, to treat this variety of emphysema by the operative removal of the rigid cartilages of the ribs. The proposal, however, was not well received, and the whole question seems to have fallen out of mind. In 1901 Freund once more brought the matter forward, this time at Berlin, and since that date he seems to have written over a score of papers on the subject. The first "Freund's operation," or costal chondrectomy for the relief of pulmonary emphysema, was performed in 1906 by Hildebrand. The patient was an emphysematous man of 46, with symptoms of heart failure. Hildebrand removed half an inch of the second and third right costal cartilages under local anaesthesia. The patient was so much pleased with the resulting improvement in his condition that he asked to have his left costal cartilages operated upon; this was done six weeks after the first operation, and pieces of the second, third, and fourth cartilages were removed. Since this case the operation has been done by many surgeons in many countries, with very varying degrees of success. In numerous cases the results have been brilliant, and the emphysematous patient has gained great relief from the operation. In other instances the patient has been no less scant of breath after the operation than he

was before it. The physiological, anatomical, and pathological bases of the operation have now been revised by numerous authors, and Freund's views have been amended and corrected in several important particulars. A very full account of the whole matter has recently been published by Dr. Douay,[1] a pupil of Professor Delbet of Paris, based largely on the ninety-one cases of chondrectomy in which Professor Delbet has had a hand.

In the first place, good reasons are brought forward for believing that the variety of emphysema imagined by Freund to be due to a primary rigidity and dilatation of the thoracic cage does not exist. The changes in the costal cartilages are merely those of age or old age, and are often found in the absence of emphysema. The rigidity of the thorax is not due to the cartilaginous changes alone, but demands ankylosis of the costo-sternal joints as well. The thoracic dilatation is often absent in cases of pulmonary emphysema. Many a patient with dilated and rigid thorax appears to suffer little disability therefrom, and, indeed, not even to be emphysematous. Freund has laid considerable stress upon increase in the volume of the affected costal cartilages and upon the frequency with which the second costal cartilages show the characteristic degenerative changes and rigidity. Dr. Douay's researches go to show that the changes in volume and length are not constant or characteristic, and that the second pair of cartilages commonly escape involvement, while the fifth, sixth, and seventh pairs are those most frequently affected. Further, it is found that rigidity of the ossified costal cartilages is often counterbalanced and neutralized by an increased mobility of the costo-chondral articulations. Dr. Douay has a long and interesting discussion of the general considerations touching the thoracic cage and elasticity of the lungs, the respiratory movements, and the causes and consequences of pulmonary emphysema. The general conclusions he reaches are as follows: The dyspnoea of the emphysematous patient has three main causes, and the chief of these is dilatation of the right heart; dilatation and rigidity of the thorax, and the pulmonary changes of emphysema itself are lesser but still important contributory causes.

The second half of Dr. Douay's essay is given to the operation of chondrectomy, and details of about a hundred cases in which it has been performed, with a number of anatomical observations on the rigid or emphysematous thorax. Chondrectomy is an operation not without its dangers; it should always be done under local anaesthesia, as several fatal cases of bronchopneumonia have been reported when a general anaesthetic was given. Again, sudden death may occur a few hours after the operation, owing to heart failure, apparently the result of a sudden disturbance of the intrathoracic equilibrium; hence the operation should be carried out in successive stages, as Lambret of Lille advised. The indications for the operation are very difficult to formulate in exact terms. Dr. Douay thinks that it should be advised in cases of emphysema with rigidity of the thorax and signs of failure or dilatation of the right heart. It should not be advised early in the disease, before the patient is seriously embarrassed and short of breath, and before medicinal treatment, hydrotherapy, breathing exercises, and the like have been tried and have failed to give relief. It is indicated also when the diaphragm lies low in the thorax and moves little on respiration. As has been said above, dilatation of the right heart, and particularly of the right auricle, cannot be regarded as contraindications.

As regards the operation itself, it is a fairly simple matter. The incision may be vertical, a finger's-breadth outside the costal margin, or a number of incisions may be made over the cartilages that are to be removed. The whole perichondrium must be removed with the cartilage, in spite of the danger of injuring the pleura in dissecting away the posterior layer; various ways in which this may be effected are described. From 4 to 6 cm. of cartilage should be removed, speaking generally; care should be taken to stop all haemorrhage, and the dressings should be held on by plaster, not by bandaging. As has already been mentioned, the costal cartilages should be removed a few at a time; at first the third, fourth, and fifth, perhaps, and later the second and sixth also, on one side of the body at a time. The good results of the operation depend mainly upon the relief afforded to the right auricle, but also upon the opportunity it affords for increased mobility of the chest wall and increased ventilation of the lungs.

[1] *Annales de la Clinique Chirurgicale du Professeur Pierre Delbet.* No. 4: Le Thorax et l'emphysème: la chondrectomie. Par E. Douay. Paris: F. Alcan. 1914 (publication delayed by the war). (Imp. 8vo, pp. 472; 111 figures. Fr. 20.)

THE RESTORATION OF DISABLED SOLDIERS TO CIVIL LIFE.

WE are glad to see that the newspapers are beginning to turn public attention to the need for the establishment of a sound system of dealing with the physical needs of the disabled soldier. We have on many occasions pointed out the importance of the subject and the difficult administrative questions which have to be solved. On the general principle there is no difference of opinion; every one is agreed that the nation is under an obligation to the men who have fought for it to do everything possible to restore them to health and activity. To this end the army has established general hospitals, special orthopaedic hospitals or departments of general hospitals, convalescent camps and homes, and command dépôts, such as those at Tipperary and Heaton Park, near Manchester, described in our columns on August 12th, where men who have been lamed in arm or leg, or suffered in health, may be made fit again. The authorities of the army have established this organization primarily, of course, to relieve suffering and to cure the man of his wound, but also, looking at the matter from their point of view, with the hope that the man may be so soundly cured that he can again return to active work in the army, if not in the fighting line, at least on the lines of communication abroad or at home.

But there are many men who can never be so restored to health and activity as to be able to serve again, and there are others, many of them now under treatment in military orthopaedic hospitals, in whom the prognosis is doubtful. The army is disposed to say that if it is proved that a man cannot serve again, then he should be discharged from the army. It is a matter partly of administration and partly of finance. It is argued that the retention of the disabled man in the army will clog the military machine, and that the expense of his maintenance and treatment will unduly swell the army estimates, and ought to be borne by some other department of the Government. But the State having assumed responsibilities in the way of pensions and supplementary pensions, it makes no difference to the taxpayer through which department the cost is defrayed. The nation desires that efficiency should be combined with economy, and any scheme devised must have regard to economy, not merely in money, but in time and energy and personnel.

In a large proportion of cases special forms of treatment are required; the most numerous class consists of men who have suffered injuries of the limbs and who need skilled orthopaedic treatment to restore them to activity. Other classes might be quoted, such as cases of heart disorder and nervous breakdown; but, confining our attention to the orthopaedic class, we find that the special forms of treatment necessary are already being carried out by experts in the military orthopaedic hospitals, and that the greater number of surgeons of special experience in this department of practice are already in military employ. Their numbers are limited, and are not more than sufficient, if sufficient, to staff the military orthopaedic hospitals; it is, indeed, desirable that these hospitals should be used as post-graduate schools for the benefit of practitioners who remain in civil practice or may be required to serve on the staffs of military orthopaedic hospitals and departments as these increase in number and size. Here we come upon a serious administrative difficulty, for, even if it were decided to set up civil hospitals to give orthopaedic treatment to disabled soldiers, it would, in existing circumstances, be practically impossible to staff them. The organization necessary already exists in the army orthopaedic hospitals and convalescent camps, and to expel the disabled soldier in existing circumstances from the army medical organization would be unjust to him, and involve waste in many directions. A man discharged from the army becomes a free agent, and his acceptance of any offer of civil treatment, even if it could be organized, will be a purely voluntary act. It can hardly be doubted that of men discharged many if left without guidance and control will drift away to their homes, far from any facilities for special treatment, and will tend more and more to lose heart, and to live on their pensions, becoming a burden to the community and a misery to themselves and their families.

The Central Medical War Committee regards any scheme which would set up civil institutions to achieve the same ends as army institutions already in existence with apprehension, owing to the effect it may be expected to have upon the recruiting of medical officers for the R.A.M.C. The discharge of disabled men before they are rendered as fit as possible for civil life would place an undue burden upon the insurance scheme and upon the medical practitioners who are giving service under it. The fact that disabled men if discharged from the army become, if insured persons, entitled to medical benefit, is recognized by the Insurance Commissioners, and the Commission for England, as noted in the SUPPLEMENT for this week, has prepared a memorandum to Insurance Committees calling attention to the position, and has promulgated a new regulation intended to cover the point. The memorandum recognizes that in the treatment of such cases a panel practitioner will frequently require specialist or consultant services, and prescribes conditions under which they should be sought. Beyond this the memorandum does not go, but we cannot but believe that the Commissioners would favour any well-considered scheme which would retain the disabled soldier in the army so long as he requires special treatment in an orthopaedic hospital; that is to say, until by surgical means, massage and regulated exercises he is restored to the maximum possible efficiency. It is also very desirable that during this period of his treatment, for reasons we have on many previous occasions fully set out, he should be from the earliest possible moment put to useful work. Such a plan is not only economically but therepeutically sound.

THE FOUNDATION OF THE RED CROSS.

THE initiation of the Red Cross organization is generally attributed to the Swiss philanthropist, Henri Dunant. With his mind full of the work of Florence Nightingale he visited the battlefields of Solferino in 1859, where he was painfully impressed by the sufferings of the wounded, left for days on the ground where they fell. The story of the life and work of the "Monsieur en Blanc," as he was called from the summer attire which he wore when going about on his errand of mercy, was told in some detail in the BRITISH MEDICAL JOURNAL of October 3rd and October 10th, 1914 (pp. 591 and 633). That account, based on authoritative documents, embodies the generally received version of the foundation of the Red Cross. In *La Medicina Pratica* of July 31st, however, the glory of this great step in the progress of humanity is claimed by Dr. Pietro Masucci, professor of laryngology in the University of Naples, for Ferdinando Palasciano, sometime professor of clinical surgery at Naples, a member of the Italian Chamber of Deputies, and later on a Senator. When serving as an army surgeon in 1848 he is said to have proposed to General Filangieri that the wounded in war should be neutralized. His experiences in 1859 made him still more eager in the pursuit of his idea, and he continued to work for its realization. On April 28th, 1861, he delivered an address at the Accademia Pontaniana urging governments to co-operate with the medical profession in securing better treatment for the wounded, and urging that for this purpose the principle of neutrality should be recognized by belligerent powers. That address was published and brought to the notice of the Italian and French Governments and of Dr. Appia, a physician of Geneva. In another address, delivered on September 29th, 1862, Palasciano dwelt on the necessity of convening an international congress to formulate a scheme in accordance with his ideas. We have no wish to detract from the credit due to Palasciano for his labours in a good cause, but justice to the memory of one of the greatest apostles of humanity compels us to say that Professor Masucci's attempt to deprive Henri Dunant of the glory that is his, is rather disingenuous. He suggests that Dunant's work began with the publication of his *Souvenirs de Solférino* in 1862, and that his proposal amounted to nothing more than the formation of a corps of volunteer doctors. It is on record, however, that he saw Napoleon III almost immediately after the battle, and that the Emperor accepted the principle of the neutralization of the wounded, of the ambulances and their personnel. Dunant attended the fifth International Congress of Statistics held at Berlin in September, 1862, when a resolution was passed recognizing the value of his work, and expressing the hope that the conference then about to be held in Geneva would help to diminish the loss of health and life caused by war. Dunant was secretary of that conference which led to the meeting of the Congress in August, 1864. The outcome of that Congress was the Geneva Convention. Palasciano may have been the first to propose the neutralization of the sick and wounded, though even on that point the evidence is rather shadowy. But to Henri Dunant is due the acceptance of the principle by the Powers and the realization of the scheme. And to the man who gets the thing done belongs the glory of the achievement.

THE RATE OF MORTALITY IN THE BRITISH ARMY ONE HUNDRED YEARS AGO.

IN an article in the *Journal of the Royal Army Medical Corps* for August Dr. Arnold Chaplin has dealt with the rate of mortality in the British army between the years 1817–21, and has compared it with the death-rate shown in the army returns for the periods 1876–85, and 1907–11. In this investigation deaths caused in battle have been excluded, and the figures, therefore, relate to deaths from sickness alone. In order to arrive at conditions

most unfavourable to health in the army, deaths arising amongst officers have not been included, and thus the returns refer to the rank and file. For the period 1817–21 the "monthly returns," the "casualty returns," and the "muster rolls" in the War Office series of documents in the Public Record Office, have been used, while for the later periods the published returns of the Army Medical Department have been consulted. The results obtained offer striking proof of the wonderful progress made in army medicine and hygiene during the last hundred years. To take some examples: One hundred years ago the annual rate of mortality in the army quartered in Great Britain was about 17 per 1,000, while in 1907–11 it was 2.6 per 1,000. In India it was 87 per 1,000, against 6.7 per 1,000 in 1907–11; and in West Africa the enormous annual death-rate of 362 per 1,000 was registered, against 11.9 in 1907–11. While the terrible war is taking its toll of the best of our race, it is, perhaps, a satisfaction to know that our fathers paid cheerfully an almost equal blood tax in deaths from sickness alone in order to acquire that empire which we are fighting to hold.

PRESERVATIVES IN FOODS.

PRESERVED foods of many different varieties are practically indispensable in modern civilized life. Yet many of the chemical substances used as preservatives are poisonous in large quantities, and at best only relatively harmless when taken in even small amounts. Benzoic acid and sodium benzoate are looked upon by some as the most promising of the many chemical antiseptics used nowadays for the preservation of food; yet we are not justified in saying that even they are strictly harmless, and the Board of Agriculture has recently issued a warning against the use of sodium benzoate in jam. Away, then, with preserved foods! Quite impossible; it is obvious that a diet composed of fresh articles of food alone, uncontaminated by such antiseptic substances as sugar, salt, smoke, or vinegar, would be unendurably tedious to most of us. It may be our own fault; but who could contemplate with equanimity a festive board—or rather a bare table—stripped of all jams, marmalade, salt fish and flesh, kippers, pickles, and most of the hundred and one *hors-d'œuvres* and side dishes, preserves and stimulating sauces, that do so much in this world to help indifferent meals upon the way they must go? It remains, then, to submit all chemicals used in preserving foods to a strict scrutiny, and to prevent their abuse. The whole subject has recently been discussed[1] in a fairly practical and temperate manner by Professor Folin, of Harvard University. His book, *Preservatives and other Chemicals in Foods*, is one that may be read with advantage by medical men and laymen alike. As he points out, vast sums of money can be made out of preserved foods; and the manufacturer's interest in the products of his factories is apt to be pecuniary rather than of the scientific or hygienic kind. Naturally the business man uses the preservative that is simplest or cheapest for his particular purpose, perhaps without any excess of anxiety as to the effect of the preservative on the consumer's tissues and alimentary tract. Professor Folin would put an end to this by forbidding the use of any antiseptic in foods until its harmlessness had been proved; at the present time the law indicates the reverse process, no preservative being prohibited until it has been shown to be injurious. Professor Folin would thus leave the food preserver two chemical antiseptics to be used *ad libitum*—namely, sugar and salt. As for the other common preservatives, he would prohibit entirely the use of formaldehyde, salicylic acid, boric acid, borax, sulphites, sulphurous acid, and smoking. There is, he says, no sound reason why the above-mentioned antiseptics should be permitted in any article that is used as a food; all are suspicious characters. Flour that has been bleached, or "artificially aged" as its producers call it, by exposure to the fumes of nitrogen peroxide should not be allowed on the market; the use of preserved foods highly coloured by chemicals or dyes should be discouraged. The only other preservatives Professor Folin contemplates retaining are benzoic acid and sodium benzoate; they are, indeed, poisonous substances, but he believes that the tissues of the human body command an efficient metabolic process for converting them, by combination with glycocoll, into the harmless hippuric acid, in which form they are excreted. There is room, as he points out, for much pioneer work in the discovery of new chemical substances that will preserve foods from decay yet be harmless to human beings. The law at present endeavours to protect the public by a series of prohibitions as regards the use of chemicals in food products; Professor Folin sees no hope in this method, for the expert "food chemist" may always be trusted to go one better than the law and to circumvent it. Such legislation should rather take the form of a series of permissions granted as exceptions to the general rule that no chemicals or drugs of any kind may be added to any article of food.

[1] *Preservatives and other Chemicals in Foods: Their Use and Abuse.* By Otto Folin, Ph.D., Hamilton Kuhn Professor of Biological Chemistry in Harvard University. Harvard Health Talks. Cambridge: Harvard University Press. 1914. (Fcap. 8vo, pp. 60. 2s. 6d. net.)

SCARLATINA AND ITS SEQUELAE.

A SEARCHING investigation of the sequelae of scarlet fever has been made by the statistician to the Life Insurance Company, New York, Dr. Dublin,[1] who some time ago published statistics relating to typhoid fever, reporting after-histories for four or five years, especially the occurrence of any undue number of deaths during that space of time from causes which might reasonably be considered sequelae of the primary disease. In a series of 1,428 cases in which the patients had survived typhoid fever the mortality during the three following years was twice as great as was to be expected from the age, sex, and colour of the group. This high rate of mortality resulted from an increase in the number of deaths from tuberculosis and organic heart disease. In view of the well-known effect exerted by scarlet fever on the heart and kidney, it seemed likely that an analogous condition of high subsequent mortality might be found to prevail. The records of the Visiting Nurse Service of the Metropolitan Life Insurance Company afforded Dr. Dublin, as in the typhoid fever series, the original material for the second investigation. There were 1,153 cases of scarlet fever among white persons in the two years 1911 and 1912. The patients were all treated by competent physicians, and were all policy holders of the company, so that the after-history was easily traced. There were in all 90 deaths in the total, representing a rate of 7.8 per cent. The mortality was very high among little children. There were distinct complications in 62 of the 90 cases. In 11 kidney disease developed, in 7 morbid heart conditions (fatal cases), in 13 pneumonia, in 4 meningitis, and in 1 otitis media. In nine of the fatal cases the scarlet fever was complicated by another acute infection, such as diphtheria or measles; other complications were not so clearly defined. Among the 1,063 survivors, Dr. Dublin registers 31 cases of nephritis, 31 of otitis media, 22 of adenitis, and 11 of pneumonia. He believes, however, that some of the complications among the patients who recovered were not reported so well as could be wished. Turning to the after-histories of the survivors, there were represented during the entire subsequent period 3,583 years of life. According to the standard used by the company for its policy holders, 18.6 deaths would have been expected, yet, as a matter of fact, there were only 18 deaths. Thus, while in the typhoid fever series the mortality was very high, Dr. Dublin found the death-rate in the scarlet fever series almost identical with the expectation based on the company's general

[1] A Study of 1,153 Cases of Scarlet Fever, with Special Reference to their Sequelae, *Journ. Amer. Med. Assoc.*, 1916, p. 1667.

mortality experience; this might possibly be due to the survivors taking unusual care of themselves. Of the 18 deaths which occurred in the four years, three showed a record of endocarditis on the death certificates, most probably representing impairment due to the original scarlet fever. There were 5 deaths from respiratory diseases and 4 from tuberculosis. The remainder, Dr. Dublin states, were scattered among a number of cases of no special interest. Strange to say, there were no deaths from kidney diseases. Thus among the survivors of the primary disease the kidneys were not so largely impaired as to cause early death. Dr. Dublin analyses his series very critically, so that his monograph deserves close scrutiny both by physicians and statisticians.

HELMINTHIASIS AND APPENDICITIS.

THE discovery from time to time of intestinal worms in the cavity of inflamed and perforated appendices suggested the possibility of these parasites being a pathogenic factor in appendicitis, and the subject has been carefully worked at by various observers at home and abroad. The *Trichocephalus*, the *Ascaris*, and the *Oxyuris* have all been incriminated, especially the first named, which, on account of its pointed head and formidable jaws, has even been accused of directly perforating the wall of the appendix. The parasite, of course, cannot be the only factor, seeing that but a small proportion of persons suffering from helminthiasis develop appendicitis, but there is evidence that under conditions favourable to them these worms can and do find their way into the appendix and damage the mucosa, and so permit the inoculation of faecal micro-organisms. Metchnikoff took a very serious view of these morbid possibilities, and strongly advised routine microscopical examination of the faeces for ova in all cases in which the symptoms pointed to pericaecal inflammation. He adduced evidence that intestinal worms are, in not infrequent instances, the cause of appendicular symptoms which prove amenable to vermifuge drugs; indeed, he went so far as to suggest that the abandonment of the ancient practice of administrating vermifuges to the young at stated intervals is in some measure responsible for the increased prevalence of appendicular trouble. Guiart examined the faeces of a large number of adult hospital patients in Paris, and found the ova of *Ascaris* in 20 per cent., and of the *Trichocephalus* in 56 per cent. Raillet, in a thesis, states that of 119 patients between 2½ and 15 years of age operated upon by Broca between May, 1909, and August, 1910, *Oxyuris* was present in the appendix of 58. In 19 of these ova of *Trichocephalus* were present also and in 4 ova of *Ascaris* (in two of the latter both *Ascaris* and *Trichocephalus* eggs were found). In 16 cases only were ova seen in the appendix, while 45 (38 per cent.) had neither ova nor parasite. Microscopical examination of the faeces in 112 of these patients revealed the presence of ova in 76—that is, 60 per cent. In 66 cases *Trichocephalus* eggs were found in the stools, but of these only 26 had them in the appendix at the operation. In 36 cases no eggs were discovered in the motions in spite of the fact that 18 had *Oxyuris* in the appendix. It is not an easy task, we are told, to discover the ova of *Oxyuris*, and even when the ova of *Trichocephalus* are present it may be difficult to alight on them, because they are deposited in the caecum and come away at irregular intervals. Raillet notes that the *Oxyuris* or its eggs are found in the walls of the appendix most frequently between the age of 8 and 13, at which age appendicitis also is frequent. Irritation of the appendix by these parasites short of actual inflammation can be distinguished, it is said, by the fact that it is not accompanied by marked leucocytosis, whereas true appendicitis, as is well known, is invariably accompanied by a great increase in the number of polynuclear cells. It was remarked incidentally that once the worm finds its way into the appendix it ceases to be amenable to the action of vermifuge remedies, so that these can only be of service by clearing the worms out of the intestine where they might prove dangerous. It is quite possible that we are not sufficiently alive to the relationship between the appendicular syndrome and the presence of intestinal parasites, and much remains to be worked out in this connexion.

EPIDEMIC ANTERIOR POLIOMYELITIS.

DR. MATTHEW HAY, M.O.H. for Aberdeen, recently reported that during the past month twelve additional cases of anterior poliomyelitis had occurred, raising the total to sixty-seven since the commencement of the outbreak. During September eight cases were reported, but in all save two the illness had begun earlier, in two instances as far back as the first week in June. The majority of the cases were under 3 years of age, only two were over 4 years, one being slightly under 5 years, and the other a few months above 5 years. Two of the cases were in one family and became ill on the same day, so that they had apparently been infected simultaneously; none of the cases notified in August and September had any discoverable association with previous known cases. During these months all cases were removed to the city hospital; one death had occurred in a baby aged 4 months, suffering from pneumonia when admitted. A Dublin daily paper recently stated that at least four definite cases of acute poliomyelitis had occurred in the city and county. Sir Charles Cameron, M.O.H. Dublin, has since addressed a letter to the press stating that three cases of poliomyelitis had been notified within the last three weeks. He expresses his conviction that the illness in one of the cases was the result of an accident, and that the others were not of the epidemic form prevalent in New York. The three children are recovering.

THE FRUITS OF UNITY AND ORGANIZATION.

AN interesting little story, illustrating what can be done when the medical profession is united and possesses an organization which enables it to negotiate on an equal footing with workmen's organizations, comes to us from a midland district. Difficulties arose with the colliery clubs when new arrangements were formulated after the coming into force of the Insurance Act; the doctors' terms, fixed at 13s. a family, were accepted by all the collieries save one, which succeeded in importing practitioners into the district. About a year ago this colliery club expressed its readiness to pay the family fee originally laid down, but asked the other practitioners in the district to work with the doctors it had appointed. This proposal was declined, but we are informed that it has recently been decided at a general meeting of this colliery club to pay the family fee originally asked for, and after a date which is not distant not to engage the services of any medical man who is not a member of the British Medical Association. The local Division of the Association, which, we understand, acted for the profession in the area in this matter, is to be congratulated on the result, and the incident is not without its moral for medical men practising in other industrial districts.

ACCORDING to the *New York Medical Journal*, during the six months ending July 31st, 1916, the membership of the American Red Cross Society increased from about 27,000 to about 210,000, an increase of nearly 800 per cent. During the same period the number of Red Cross Chapters organized throughout the United States increased from 110 to 199. The personnel required for twenty-five base hospitals of 500 beds each for the army has been enrolled from among the staffs of twenty-five of the largest hospitals of the country, and funds for the purchase of equipment of sixteen of these hospitals, costing £5,000 each, have been subscribed. Several naval base hospitals, which are about half the size of the army base hospitals, are now being organized.

THE WAR.

SOME IMPRESSIONS OF A CIVILIAN AT THE WESTERN FRONT.

"One has only to go across to the other side to realize that everybody out there is doing his best."—*In the R.N. Air Service.*

An Advanced Dressing Station.

One day—the day the Irish with the English battalions on their right went through Guillemont—it was my fortune to be at an advanced dressing station as the wounded were coming in. We had come up a rough road over the chalk down, just good enough at its best to serve to carry the scanty traffic from one small village to another, but now cut up by the heavy ammunition wagons —"load not to exceed three tons"—and showing traces of shell holes hastily filled up. The ground all about was seamed with old German trenches, warrened by German dug-outs, and littered with fragments of shells. We looked over to High Wood and Delville Wood, and could see other places with names made familiar by the communiqués. The post was within reach of hostile shell fire; there had, in fact, been some casualties the night before. The medical officer had put up a few tents in a slight depression on one side of the road, and a dressing place had been dug out on the other—a tunnel perhaps some thirty feet long and eight or ten wide at its widest. A path sloped down into it from the road, and along it came the men in single file. The entrance to the tunnel was narrowed by a table where each man was stopped to give his name and number, the first field dressing was looked at, his shirt opened at the neck, a dab of iodine mopped on to his chest, a dose of antitetanic serum injected through it, and a big T marked on his wrist with an aniline pencil. The officer who was with me said to one man who had bared his chest—the operation of injecting was completed while they spoke—"Well, how have you been doing?" "We have taken two hundred prisoners," the man answered, knowing that the statement would convey a more true picture of what had happened than eloquent phrases. To the next man who entered my companion said, "So you have got some of them." "Yes," was the answer, "there's one of them come along with us on a stretcher." We went to the mouth of the dressing tunnel, room was made by the men walking down the path, and the stretcher was brought forward. On it was a pale-faced, neurotic looking middle-aged man, who said he was from Hamburg. He seemed nervous and rather scared, as well he might, a helpless wounded man in the hands of an enemy he had been taught to hate and dread. But he was treated like our own people, he had got into the first slot in the machinery of the British Army Medical Service, and would pass along through it, carefully and skilfully tended at every stage, until he is now probably reflecting on the different habits of different nations in some base hospital at the seaside.

We turned back through the tunnel with our wounded friends, and crossed the road to a lean-to where others who had arrived a few minutes before were already drinking big mugs of hot tea and munching bread with that excellent appetite which the British soldier in the field seems never to lose so long as his temperature is normal. Before we left, a big motor char-à-banc arrived for sitting cases, and within the hour we met at the casualty clearing station a few miles down the line the men we had spoken to in the dug-out. On our road to it we overtook other char-à-bancs going down, and met more going up, as well as ambulance cars for stretcher-cases sent up by the Field Ambulance Main Dressing Station, which was established in a small shallow valley just off the road. As we were speaking to one of its medical officers a howitzer gave its short deep bellow; in the first disconcerting moment it seemed to be just over my shoulder; it was in fact some little distance to our rear, so that this field ambulance, like most of them, was within range of heavy guns.

Casualty Clearing Stations.

We stopped at the casualty clearing station. It had many empty beds and vacant places for stretchers, for it had just loaded an ambulance train which was on a siding outside the camp waiting the signal to start for the coast. We found the train medical officer who had just taken over his four or five hundred men, and walked with him through a number of the coaches in which the wounded lay on stretchers in two tiers in two rows with a gangway down the centre. We passed a small sitting-room in one coach where the sisters were waiting, looked into the dressing-room furnished with an operating table and all necessary appliances, saw the dispensary, and glanced at the quarters for the staff before the long train steamed off. It was one of the early trains made up of coaches not specially built for the purpose, but it seemed to provide all essentials for comfort, and was as spick and span and well ordered as a sailor has his ship on the second day out.

A casualty clearing station to the civilian practitioner, whose concern is with clinical rather than preventive medicine, is perhaps the most interesting of military medical units. To watch it at work is an experience never to be forgotten, and it is easy to understand the ambition of keen young officers at the base to earn the privilege of appointment to one of them. As with every other unit of an army in the field its work varies in character and amount with the area and intensity of our own operations or those of the enemy.

A casualty clearing station is primarily a place where wounded and sick can receive immediate treatment before being dispatched to the base by train or barge, but it must be prepared to retain, treat, and nurse cases so serious that they ought not to travel further; in particular, it must be ready to operate on abdominal wounds and to treat fractures of the thigh. It may also be thought right to retain men with penetrating wounds of the chest and head injuries, though such cases travel better, and some authorities are of opinion that all or most of them might safely be evacuated to the base.

In this casualty clearing station special wards for gunshot wounds of the abdomen and chest and other severe cases had been formed by combining several marquees. There was also a special ward with its own sister for men suffering from shock too profound to justify operation however urgent the demand for it might otherwise be. They were put to bed, kept warm, given saline, or coffee and brandy injections, and a chance of life. So many men, apparently dying when admitted, had pulled through that somebody had dubbed the place "the resurrection ward."

The operating-room occupied a wooden building. The walls were enamelled white internally and the lighting was excellent. There was room for five tables, and as all had been in use at once during a rush, the need for a large staff was obvious. It included when I was there, in a relatively quiet time, three surgical specialists, as well as assistants, anaesthetists, theatre sister and nurses, and they were being kept pretty busy.

Some of these clearing stations work in pairs, and in one instance I was with the commanding officer when an orderly reported to him that 400 new cases had been received. This, as he explained, was the limit fixed at that time and in that place. The ambulances were

accordingly diverted to the second clearing station close by, while the first had a respite to deal with its new 400. They included men suffering from wounds of every degree of severity, and some medical cases. The first sorting was into those who could be sent down by the next ambulance train and those judged to be either too ill to travel or to need immediate treatment—as, for instance, for fracture of the thigh—to fit them to travel.

Of the lighter cases sorted out as fit to be evacuated at once every one had, of course, to be examined, in many the dressings were renewed and all were fed. As they were made ready for the train, they were sent into a sort of big hall constructed of telegraph poles and tarpaulins. The place was a study in browns—brown blankets, brown stretchers, and soiled khaki and kit—a little gloomy, perhaps, but the men did not seem to feel it so, for they knew that only a short and easy railway journey separated them from the comforts of a base hospital, or that they might, indeed, be home in a day or two.

The wards where men were bedded were far from gloomy. The medical officer declared that nothing cheered a wounded and tired man so much, and gave him a greater feeling of physical comfort and well being, than to be put into a bright ward with white counterpanes on the beds; when it was suggested that red was to some an even more cheerful colour, he was proud to show a neighbouring ward with scarlet blankets.

Not all clearing stations are in tents or huts. Some are in big institutional buildings, others are partly in buildings and partly in tents or huts. One casualty clearing station I visited was established in a monastic building. A few weeks earlier a big shell had fallen in the courtyard, wrecking the front of the chapel. It had dug a huge hole in the ground and the concussion had blown in many windows, including those of the room used as an operating theatre. An abdominal operation was just being completed, but every one "carried on," including the sisters. As shells had been coming into the town previously all the patients had been removed to the basement, which was fortunately roomy, and none of them were injured. The station is still used for severe cases, and the basement has been made as clean and airy as possible, and when I was there contained a considerable number of patients.

At yet another part of the line we found three casualty clearing stations at railhead, with a special railway siding of their own. At one of them a pathologist had his mobile laboratory drawn up in the yard, and was doing very excellent pathological work, some of it of the nature of original research, in a shed he had fitted up with all the essential apparatus of his craft.

The selection of the place in which a casualty clearing station is to be established is dictated by tactical considerations, but, whatever the building or site given to him, the commanding officer must make the best of it. It may be a big school or monastery, it may be a chateau with gardens and park in which to plant his tents or huts, or it may be an open field. In any case his ingenuity is likely to be taxed; he has to choose the best places for his temporary wards, for his operating-room, to provide safe drinking water, to set up lavatories and baths, and to dispose of the refuse and excreta of his camp. Often, also, he must be something of a road maker, for a good broad road by which ambulances can enter and leave, and dry paths between the several huts or tents are very essential to efficiency. From the sanitary point of view, to be given an old building is not an unmixed blessing, but to have a good dwelling house on a roomy site is undoubtedly an advantage. After a time he may have leisure to think out various small improvements in detail, to put into practice tips picked up from neighbouring casualty clearing stations, or suggested by his staff or patients, to set tinsmiths or carpenters among them to work at odd jobs, and perhaps to encourage gardening. By the time he has reached that stage we may hope that he will be moved on to begin all over again on another site further forward, for it will mean that the army has advanced.

The Motor Vehicle.

One of the strong impressions a visitor carries away is of the immense part played by the petrol-driven vehicle. He finds that the work of a superior officer is greatly simplified by the touring car, which renders it possible for him to see as much of the units for which he is responsible in a day as he could with horses in a week. Journeying with such an officer he will go over long stretches of road where the motor lorries carrying ammunition and supplies of food and all the other necessaries of an army are as thick as omnibuses in the Strand. The stream going up full has its counterpart in another coming down empty; here and there he may pass long rows of full ammunition wagons waiting to be called forward. Ranged in a village street, handy to the telephone, he will pass a motor ambulance convoy with its cars ready to start on the instant, or he will meet them coming down to some casualty clearing station, working their way quickly and deftly through the heavy traffic. He will be amazed at the boldness and skill with which the dispatch riders slip their motor bicycles through chinks in the traffic that seem too narrow for a cat.

The lines of supply and evacuation of an army in this war have been compared to two fans spread out with their handles together. The tracks converge from the base to some point or narrow strip and then diverge again to the several units in the fighting zone. The way in which the traffic is controlled in the congested parts where the two fans meet is a source of constant admiration. A block lasting more than a few minutes is probably due to a battalion or battery passing across the route.

The motor vehicle has had a large share in maintaining the health of the army by, in the first place, ensuring supplies of food, since it can travel direct to points not reached by the ordinary railways or even by the light railways that have been laid. It has also in several ways contributed not a little to the success of the medical administration. There is, first and foremost, the speed with which motor ambulances bring down the wounded through the field ambulances to the clearing stations. There is also the ease with which they can be conveyed from these units to the ambulance train should the ambulance siding not be actually at the clearing station, and from the ambulance train when it reaches the base to the base hospitals, some of which may be a few miles away from the railway. There is the rapidity with which medical supplies—drugs, splints, and all other requisites—can be carried direct to any unit without transhipment. There is the facility with which specimens of water or excreta or blood can be sent into the field laboratories for examination. There is also the great advantage from the general sanitary point of view that the number of horses employed by all branches of the army is greatly diminished. The disposal of manure from extensive horse lines may be a very difficult problem; the amount produced is in excess of the demands of the local farmers, and if allowed to accumulate quickly becomes a breeding place for flies. The surplus must be incinerated, which is a troublesome business. The general use of the motor vehicle for nearly every sort of transport has reduced the difficulty in most places to a manageable minimum and it is only serious here and there.

THE ADVANCE ON THE SOMME.

It is too early yet to attempt to give any particulars of the work of the medical service during the recent advance on the Somme front, but we are in a position to say that the arrangements have again stood the test of heavy fighting in an admirable manner. There has been no hitch, and everything has gone like clockwork. The advance has no doubt involved many readjustments of medical units, for it will probably have been found feasible to move forward field ambulances and casualty clearing stations to new sites, selected beforehand in view of those possibilities of success which have now been realized.

MAN-POWER.

It seems to be very difficult to get a true opinion as to the present position with regard to the recruiting of men for the British army. On the one hand we have those who allege that all sorts of unfit men are being passed, and, on the other hand, those who assert that an immense number of eligible men are being improperly excused. Of the first point of view the following rather violently expressed letter affords an example:

Sir,

As one who, though not a doctor, belongs to a family which for at least three successive generations has been not unknown as members of the medical faculty, I venture to point out that grave charges are being largely levelled by the general public against those members of the medical profession whose duty it has been since the beginning of the war to pass or reject men for service with the colours. I speak of that which I know, for I have for some time been assistant (honorary) military adviser to a district comprising thirteen parishes scattered over a large tract of country. People are everywhere accusing these medical men of "kowtowing" to the War Office in a manner greatly derogatory to their profession by passing as "medically fit" men who have in the past been frequently rejected. It has been openly suggested more than once that "the doctors are afraid to rebel through fear of losing the money paid to them by Government." This, Sir, is surely a grave charge against an honourable and respected body of professional men.

I also dare to write on this subject because for eight years I lived on the Continent as foreign correspondent to well-known London papers, and while acting in that capacity heard many accusations made by foreigners against us as a nation. Sir, during the five years that I spent in Berlin as representative of very much respected and widely read English dailies, what do you think was the charge levelled more frequently than any other against us English? It was that of hypocrisy.

Now, if we are not open to this charge now that we are passing as "medically fit" the halt, the lame, the well-nigh blind, the men with feet as flat as pancakes, the consumptive, the diseased of heart, what is the meaning of the word hypocrisy?

If we need the unfit, let us have them by all means, and put them to what use we can. We intend to win this war, even if we have to employ for the purpose babes in arms and those in process of senile decay. But for Heaven's sake let us, as a nation, be honest. Let not these weaklings be enrolled as "medically fit," when in very many cases they have already been rejected as "medically unfit" times without number by their own medical advisers.

The matter is fast becoming a public scandal.

It is being discussed in all classes with deprecatory shrugging of shoulders, sly winks, and innuendoes against the medical men of the land. Is it not time for members of the medical confraternity to use the gigantic lever of their strong associations to put a prompt end to all this arrant humbug?

Yours faithfully,

WILLIAM A. FULLER, M.A.,
Principal of the College, Storrington, Sussex,
September 13th.

Mr. Fuller, we think, overdoes his part. Why, for instance, should medical men kowtow to the War Office? Such a suggestion might not occur to a person who had not lived so long in Germany. The further suggestion that doctors pass men as medically fit for fear of losing the money paid to them by the Government may be a grave charge, but is manifestly absurd, for the fee paid is for the examination, and does not depend upon whether a man is rejected or not. That a certain number of men should be passed as fit who have previously been rejected is not surprising; the medical profession does not profess to be infallible. Many of the men who come forward for medical examination present clinical problems of considerable complexity, and there has often been in the past very little time for solving them.

On the other side, we have the military correspondent of the *Times*, whose opinion before now has been justified by the event, declaring that for one reason or another there are "1,600,000 men of military age who have received badges entitling them to exemption . . . while there is an even larger number sheltered in Government departments and in industry, or excused from serving at the front by a whole host of obstructive regulations."

Recruiting (he goes on to say) in the old sense is dead. It is the tribunals that find the men, and while the Local Government Board gives the tribunals their instructions, and invents such absurd institutions as the Barrister Commissions—which are snowed under with work and are a cause of exasperating delays, as the writer said they would be when they were created—the Board of Trade issues instructions on its own account, and prevents the tribunals from touching great blocks of men in civil life. These follies, it must be plainly stated, are removing peace far off, and though a section of the press lays the whole blame upon the tribunals, even the most efficient of these bodies is tied by its instructions, and cannot go behind them. . . . The complaint against the tribunals is that if all the men they have exempted were under training the army would not want for men, and it is added that in some remote country districts the local interest has been placed before that of the nation. No doubt there is some truth in these complaints. It is necessary that the work of weak tribunals should be reviewed and more serious notice taken of it. After this is done, it will be legitimate and efficacious to abolish the lists of reserved occupations and to compel every man of military age to appear before a tribunal and prove his right to exemption or a badge. There can be no doubt that the 1,600,000 men of military age who have received badges include an immense number who, either by reason of their youth or by not being indispensable, should be in the army.

Other newspapers have taken up the matter from the same point of view, and it is announced that a special committee has been appointed, with Mr. Austen Chamberlain as chairman, and Lord Midleton as vice-chairman, to "determine all questions arising between Government departments relating to the allocation or economic utilization of man-power for the purpose of the successful prosecution of the war, and, in order to give effect to its determination, to direct the Government departments concerned to create the machinery necessary to co-ordinate their activities in regard to the distribution or utilization of men and women." It may be necessary to review the rejected, and gather in new recruits who can perform duties now being discharged by men fit for active service. The *Times* correspondent also touches upon this point when he says that if the country is forced to call upon older men, which, for the reason stated, he does not consider at present necessary, they should be retained for home defence and so release younger men who now form so large a proportion of the force that stays at home.

This last opinion has a direct bearing on medical affairs, and the professional committees in Scotland and in England and Wales have already, with the approval of the Medical Department of the War Office, sought to put it into practice. If, as Colonel Repington suggests, we are to raise new divisions, their medical staffs will be an additional call upon the resources of the profession. The opinion of all administrative medical officers in France is that at regimental and other advanced posts, such as field ambulances and casualty clearing stations, young men are essential. If this is true in France, it must be even more true in Mesopotamia and the Mediterranean. The demand for medical officers can only be met by carefully conserving our resources, and it appears that it may be necessary to make a further appeal to medical men over 45 to give whole-time service in this country.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

STAFF SURGEON J. KEOGH MURPHY, R.N.V.R.

Staff Surgeon James Keogh Murphy, Royal Naval Volunteer Reserve, died at Plymouth on September 13th, aged 47. He was the eldest son of the late Right Hon. Mr. Justice James Murphy, and was educated at Charterhouse, where he was a senior scholar, and at Caius College, Cambridge, where he graduated B.A. with first class honours in the Natural Science Tripos in 1891. He entered as a student at St. Bartholomew's, taking the Lawrence Scholarship and gold medal in 1895. He became M.R.C.S. and L.R.C.P.Lond. in 1894, and F.R.C.S. in 1901. He graduated M.B. and B.C.Camb. in 1896, proceeding M.A. and M.C. in 1904. After acting as demonstrator of anatomy both at Cambridge and at St. Bartholomew's, and as house-physician at St. Bartholomew's Hospital, he became surgeon to the Miller General Hospital at Greenwich and to the Paddington Green Children's Hospital. He was general medical editor to the Oxford University Press and he edited with Mr. D'Arcy Power *A System of Syphilis*, in six volumes. He translated and edited Kirmisson's *Handbook of Surgery of Children*. He also edited the *Practitioner's Encyclopaedia of Medicine and Surgery* in 1912, second edition 1913, and was the author of *Wounds of the Thorax in War* (1915). He obtained a commission in the Royal Naval Volunteer Reserve on September 25th, 1906. The funeral took place at Plymouth on September 16th, the first part of the

service being conducted at the Royal Naval Hospital Church and the interment at the Plymouth cemetery. The pall-bearers were six R.N.R. officers.

ARMY.

Killed in Action.

Captain W. CAMPBELL, R.A.M.C. (temporary).

CAPTAIN D. B. MACLEAN, R.A.M.C.(TEMP.).

Captain Dugald Black Maclean, R.A.M.C., whose death in action we announced last week, was born in March, 1889. He graduated in medicine at the University of Toronto in 1912, and after serving for two years on the resident staff of the Winnipeg Hospital, settled in practice in that city. He joined the Canadian Army Medical Corps soon after the outbreak of war, and was transferred to the R.A.M.C. in June, 1915. His brother, Major N. J. Maclean, professor of mathematics in the University of Manitoba, is now serving in one of the Canadian Scottish battalions.

Died of Wounds.

CAPTAIN A. W. HARVEY, R.A.M.C.

Captain Alfred Wallace Harvey, R.A.M.C., died of wounds on September 7th, aged 46. He was the son of the late Rev. B. W. Harvey, D.D., head master of Whanganui Collegiate School, New Zealand, and was educated at Cambridge, where he graduated B.A. in 1900, and at St. Thomas's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1905. After filling the posts of resident medical officer of the West Norfolk and Lynn Hospital, and house-surgeon and house-physician of the Queen's Hospital for Children, Hackney Road, London, he went into practice at Westcliff-on-Sea, Essex. He took a temporary commission as lieutenant in the R.A.M.C. on March 10th, 1915, and was promoted to captain on completion of a year's service.

Died on Service.

CAPTAIN H. F. G. NOYES, R.A.M.C.

Captain Harry Francis Golding Noyes, R.A.M.C., died at Bombay on September 5th, aged 36. He was the eldest son of the Rev. Dr. Noyes, of St. Mary's Vicarage, Kilburn, formerly chaplain to His Majesty's Embassy at Paris. He was educated at St. Laurence College, Ramsgate, where he was captain of the school, and gained scholarships at Caius College, Cambridge, and at the London Hospital. He took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1906, and graduated M.B. and B.C. at Cambridge in 1907. He had held the appointments of house-surgeon, resident anaesthetist, and emergency officer at the London Hospital, and clinical assistant at the Hospital for Sick Children, Great Ormond Street. He practised at one time at Tarporley, Cheshire, and was in practice at Worthing when he took a temporary commission in the R.A.M.C. on December 1st, 1914; he was promoted to captain on completion of a year's service. He had served in Egypt before going to India. He leaves a widow and three children. His brother, Lieutenant C. R. B. Noyes, Lancashire Fusiliers, was reported wounded and missing on July 1st.

CAPTAIN H. E. O'BRIEN, R.A.M.C.(TEMP.).

Captain Henry Edward O'Brien, who was reported wounded at the end of July, has succumbed to his wounds. He took the diplomas of L.R.C.P.and S.Irel. in 1912. He received a temporary commission as lieutenant R.A.M.C. in 1915, and was promoted to captain on April 14th, 1916.

CAPTAIN H. H. TANNER, R.A.M.C.

Captain Harold Herbert Tanner, R.A.M.C., whose death on service we announced last week, was accidentally drowned at Boulogne-sur-Mer on August 16th. He was educated at St. Mary's Hospital, and after holding resident appointments there, at the Hampstead Hospital, and the Royal Albert Hospital, Devonport, joined Sir Almroth Wright's staff for bacteriological research. He received a commission as lieutenant in the R.A.M.C. in June, 1915, and was promoted to captain a year later. He was 29 years of age, and was the only son of Mr. Herbert Tanner, F.R.C.S., chairman of the Kensington Division of the British Medical Association. He married last year the daughter of the Rev. George Bowden of Kingston Hill. Sir Almroth Wright has written: "I was proud having him work with me; he did some excellent good work, and would have gone on doing really good things, and that and his kindliness and helpfulness endeared him to me." Captain Inman (a colleague in France) has written: "He had great gifts as a draughtsman, and I have encouraged him to develop them as regards macro- and micro-scopic medical objects; he illustrated my chapter in the *Medical Annual* of 1916, and very well he did it. The rose irrigator he designed for septic wounds has been a great success. His ability has been very generally recognized by all who came in contact with him, and I feel sure that a career of great promise and ability has been cut short." Among those present at the funeral were Surgeon-General Sawyer, Colonel Sir Almroth Wright, Colonel Sir W. Leishman, Professor Dreyer, and some forty medical officers and many nurses.

Wounded.

Lieutenant-Colonel H. C. Hime, R.A.M.C.
Major L. M. Purser, R.A.M.C.
Captain J. B. Cavanagh, R.A.M.C. (temporary).
Captain J. A. Conway, R.A.M.C. (temporary).
Captain J. M. A. Costello, R.A.M.C. (T.F.).
Captain H. B. Jeffs, Canadian A.M.C.
Captain B. E. Kelly, Canadian A.M.C.
Captain E. F. W. Mackenzie, R.A.M.C. (temporary).
Captain B. J. Mullin, R.A.M.C. (temporary).
Captain B. Murphy, R.A.M.C.(S.R.).
Captain G. F. Randall, R.A.M.C.(S.R.).
Captain P. W. Ransom, R.A.M.C. (S.R.).
Captain W. L. Whittemore, Canadian A.M.C.
Lieutenant A. G. Bisset, R.A.M.C. (temporary).
Lieutenant W. H. Broughton, R.A.M.C. (temporary).
Lieutenant S. J. Darke, R.A.M.C. (temporary).
Lieutenant J. B. Dunning, R.A.M.C. (temporary).
Lieutenant J. McPolin, R.A.M.C. (temporary).
Lieutenant L. R. Pickett, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Bennett, John Edgar, Captain Royal Irish Regiment, youngest son of the late Lieutenant-Colonel John Bennett, I.M.S., killed September 3rd, aged 26. He was educated at Victoria College, Jersey, got his first commission from Sandhurst in 1910, and became captain on January 20th, 1915.

Blake, Christopher, Second Lieutenant Bedfordshire Regiment, fourth son of Dr. W. H. Blake, of Harpenden, Herts, killed September 4th, aged 24. He was educated at Aldenham School and at Emmanuel College, Cambridge, where he graduated in 1913, and soon after joined the staff of St. John's Missionary School, Agra. He came home to join the army early in 1915, went to the front on August 28th, and was killed a week later.

Cade, Francis Thomas Darrell, Lieutenant Hampshire Regiment, only son of Dr. Sidney Cade, of Titchfield, Fareham, Hants, killed September 6th, aged 21. His commission was dated September 17th, 1914.

Chubb, Alan Travers, Lieutenant Hampshire Regiment, only son of Dr. W. L. Chubb, of Farnborough, Hants, killed September 9th. He was educated at Pelham House, Folkestone, and at Bradfield. He enlisted in the Public Schools Battalion in September, 1914, got his commission on December 22nd, and had been at the front since last February.

Gurdon, Edwin, Private, Australian Infantry, elder son of Dr. E. Gurdon, and grandson of the late John Randall, M.D., London, died of wounds in August.

Lawder, Noel Wilfrid, Major Bedfordshire Regiment, only son of Dr. E. J. Lawder, of the Hey, Wokingham, Berkshire, killed by a shell on September 4th while directing operations in an attack. He was born at Haidarabad in 1886 and educated at Downside, Bath, and at Sandhurst. When the war began he was serving in the South Nigeria Regiment and took part in the campaign in the Cameroons. From Africa he was invalided with dysentery, and rejoined his regiment last February.

Mair, Edward Millett, Second Lieutenant Cameron Highlanders, only son of Lieutenant-Colonel E. Mair, I.M.S.(ret.), killed September 3rd, aged 28. He was born in India, educated at Cambridge, where he took the B.A., and entered the home civil service, joining H.M. Board of Works, where he served as private secretary to Sir Lionel Earle, head of the department.

Mill, Robert Cowper King, Lieutenant Royal Highlanders, the 42nd, or Black Watch, elder son of Dr. A. King Mill, of Newton Villa, Kirriemuir, killed September 3rd, aged 20. He was studying for the profession of actuary at Edinburgh University when the war began, enlisted in the Royal Scots, and got his commission on March 7th, 1915.

Packman, Thomas A., Lieutenant Royal Horse Artillery, elder son of Dr. A. C. A. Packman, of Grove House, Rochester, killed September 10th, aged 21. He got a commission in the Special Reserve of the R.F.A. on August 15th, 1914, and had been at the front since November, 1914.

Palmer, Arthur F., Sergeant A.S.C., fourth son of the late Dr. Palmer, of Loughborough, died on active service abroad on September 8th.

Perry, Alexander Ernest, Lance Corporal Cameron Highlanders, previously reported wounded and missing but now officially presumed killed in action on September 26th, 1915, was the youngest son of Dr. and Mrs. Perry, of Queen's Terrace, Glasgow; he was 25 years of age.

Roper, Eric Walter, Lieutenant Royal Fusiliers, second son of Mr. A. C. Roper, surgeon, of Exeter, died of wounds on September 12th. He was educated at Collingwood House School, Exeter, and at Blundell's School, Tiverton. After going through the Royal College of Music he adopted the stage as a profession, and in October, 1914, left the Hippodrome, where he was acting, to enlist in the Royal Fusiliers. He got his first commission on December 8th, 1914, and in May last became adjutant of his battalion. He received the Military Cross about a month ago. He leaves a widow and one daughter.

Thew, Frank Atkinson, Second Lieutenant London Regiment, killed on September 12th, was the only son of the late Dr. E. P. Thew, of Dulwich. He was educated at Dulwich College and Sutton Valence School, Maidstone. He joined the Honourable Artillery Company, and went to France in August, 1914; he returned in September, 1915, to take a commission in the London Regiment. He lost his life in attempting to bring in a brother officer who had been severely wounded in the enemy's trenches, and who has since died.

MEDICAL STUDENTS.

Pearce, Dudley George, Captain the Buffs, East Kent regiment, son of the late George Pearce, of Bournemouth, killed September 3rd, aged 25. He was educated at Dulwich and at Guy's Hospital, where he was due to take his final examination in November, 1914, but enlisted in the Honourable Artillery Company on the first day of the war. He went to the front in September, 1914, was invalided for frostbite during the winter, got a commission in the Buffs, and became captain in November, 1915.

Roberton, James L. R., Second Lieutenant Yorkshire Regiment and R.F.C., aged 21, killed on September 8th, was the son of Mr. R. H. Roberton, J.P., of Stoke Golding Lodge, Leicestershire. He was educated at Magdalen College School, Oxford, and went to South Africa to study farming at the Rhodesian Government experimental farm; he returned to England in 1914, matriculated in the University of London, and entered the London Hospital as a medical student. In 1915 he joined the O.T.C., and received his commission in the Yorkshire Regiment. After being machine gun instructor for some time he was transferred to the Royal Flying Corps this year, and gained his pilot's certificate last month. While patrolling the lines he crossed to attack a hostile craft, and his machine was shot down by a Fokker.

NOTES.

HONOURS.

ADMIRAL SIR JOHN JELLICOE'S dispatches of August 23rd and September 15th were published in the *London Gazette* of September 15th. They give lists of officers mentioned for specially distinguished services and recommended for promotion on account of services in the battle of Jutland on May 31st; and also a list of honours bestowed on some of these officers. Among them are the names of the following medical officers, together with the texts of the notes on their services in the action.

Mentioned in Dispatches.

Deputy Inspector-General Robert Forbes Bowie.
Displayed a high degree of ability during the action in the working of the medical department.

Fleet Surgeon Henry William Finlayson, M.B.
A zealous and hard-working officer, who organized his department in an efficient manner for the action.

Fleet Surgeon Joseph Agnew Moon.
Was responsible for the excellent medical arrangements for dealing with the wounded in H.M.S. *Benbow*, which were very efficient.

Fleet Surgeon Alexander Maclean, M.B.
Performed his exhausting duties with the greatest zeal and courage. The medical staff was seriously depleted by casualties. The wounded and dying had to be dressed under very difficult conditions on the mess deck, which was flooded with a foot of water from damaged fire mains. Fleet Surgeon Maclean has suffered considerably since the action from his devotion to duty.

Fleet Surgeon Harold Paget Jones.
Fleet Surgeon John Hunter Pead, M.B.
Fleet Surgeon Arthur Richard Harrie Skey, M.B.
Fleet Surgeon John Reid Muir.
Staff Surgeon Bertram Raleigh Bickford.
For great gallantry and devotion to duty in action. This officer, though severely wounded by a shell splinter, persisted in attending to the wounded, only yielding to a direct order from myself [Commodore Charles E. Le Mesurier] to place himself on the sick list.

Staff Surgeon James McAlister Holmes, M.B.
For the very efficient manner in which the wounded were attended to whilst under fire and subsequently.

Surgeon Horace Elliott Rose Stephens.
Surgeon Horace Palmer Margetts (temporary).
Surgeon Probationer Douglas George Patrick Bell, R.N.V.R.
Devoted great attention to the wounded, and amputated a limb single handed in the dark.

Surgeon Probationer Neil Macleod, R.N.V.R.
Surgeon Probationer Gilbert Blurton, R.N.V.R.
Surgeon Probationer Carl Knight Cullen, R.N.V.R.

Recommended to be Noted for Early Promotion.

Fleet Surgeon Robert Hill, C.V.O.
The principal medical officer of the fleet flagship and on my staff. His excellent organization and services before and after the action were of great assistance, and contributed much to the wellbeing of the wounded.

Fleet Surgeon Arthur Reginald Bankart, C.V.O., M.B., K.H.P.
Has organized his department for action in a most efficient manner.

Fleet Surgeon Alexander Maclean, M.B.
Fleet Surgeon Ernest Alfred Penfold, M.B.
Was in the fore medical distributing station when a heavy shell burst just outside, killing and wounding many. Fleet Surgeon Penfold was himself knocked down and bruised and shaken, but personally assisted in the removal of wounded, and afterwards tended the wounded with unremitting skill and devotion for forty hours without rest. His example was invaluable in keeping up the *morale* of the wounded and of the medical party under very trying conditions.

Fleet Surgeon Christopher Louis White Bunton, M.B.
Did good work, being hard pressed with many sudden casualties of a serious nature.

Staff Surgeon Arthur Reginald Schofield, M.B.
For skilful and untiring attention to the wounded.

Temporary Surgeon Richard Stocker Carey.
For skilful and unti ing attention to the wounded.

Surgeon William James Aitken Quine, M.B., R.N.V.R.
For his assiduous care of and attention to the wounded, of whom he was in sole charge for over forty hours, the staff surgeon having been severely wounded.

Promoted.

Fleet Surgeon Robert Hill, C.V.O., to be Deputy Surgeon-General.

Noted for Early Promotion.

Fleet Surgeons A. Maclean, E. A. Penfold, A. R. Bankart, C. L. W. Bunton.
Staff Surgeon A. R. Schofield.
Surgeon W. J. A. Quine, R.N.V.R.
Temporary Surgeon R. S. Carey should he be transferred to the permanent list.

The following honours are conferred upon medical officers;

C.B.

Deputy Inspector-General R. F. Bowie.

D.S.O.

Fleet Surgeons Joseph Agnew Moon, Alexander Maclean, and Henry William Finlayson.
Staff Surgeons Bertram Raleigh Bickford, and James McAlister Holmes.

Distinguished Service Cross.

Surgeon Probationer Douglas Gordon Patrick Bell.

Croix de Chevalier, Legion of Honour.

Fleet Surgeons Thomas Austen and John Hunter Pead.

HAMMERSMITH MILITARY ORTHOPAEDIC HOSPITAL.

Field Marshal Viscount French, accompanied by some members of his staff, visited the Hammersmith Orthopaedic Hospital on September 14th. He saw the institution in full working order and showed great interest in the several departments.

England and Wales.

STATEMENTS made in the public press to the effect that there has recently been an unusual prevalence of diphtheria in London do not seem to be borne out by the statistics. The number of cases notified during the five weeks ending September 9th was 707; in 1915 the number of cases notified in the five weeks ending September 11th was 814. The figures for this year give an average weekly mean number of cases a little below that for the nine years 1906–14.

THE UNIVERSITY OF WALES AND THE BOARD OF EDUCATION.

The resentment aroused in Wales by the somewhat domineering attitude assumed by the officials of the Board of Education found expression at a special meeting of the Court of the University of Wales on September 16th. Sir Harry Reichel, the Principal of Bangor University College, said that things seemed to be tending towards the exercise by the Board of Education of control over provincial universities similar to that which it exercised over the secondary, and still more over the elementary schools. If this tendency was not checked, a stage would be reached in which the whole policy of the modern university would be controlled by a bureaucracy at Whitehall having the power of the purse. This view was supported by other speakers, including Sir David Brynmor Jones, who said that, as the university accepted financial aid through the Board of Education, the Board had the right to inspect the university accounts, but since the application of the money involved the development of the University,

absolute freedom should be demanded. A resolution was adopted to the effect that the Court assumed that there would be no interference by the Board of Education with the external administration, or with the teaching of the university, and appointed a special committee to confer with the Welsh members of Parliament with the view of securing these ends. While Wales is glad to receive expert advice and considers itself entitled to pecuniary assistance from the State, it is quite able, if need be, to do without both if their acceptance involves intellectual slavery.

Welsh Hospital for Maimed Soldiers.

It has been decided to establish at Cardiff a hospital for maimed soldiers on the same lines as the Queen Mary Convalescent Hospital at Roehampton, and working in association with it. The need for such an institution has been recognized for some time, and its realization has been made possible by the gift through Lieutenant-Colonel Lynn Thomas of two sums of £5,000 each, from a shipowner and a coal exporter in Cardiff respectively, who prefer at present to remain anonymous, for the purchase of a house. One considered suitable for the purpose by Lieutenant-Colonel Robert Jones, inspector of military orthopaedics, and Lieutenant-Colonel Lynn Thomas, consulting surgeon to the Western Command, in which Wales is included, has been found, and the Lord Mayor of Cardiff, Dr. R. J. Smith, has taken the matter up strongly; the promoters have the advantage of the advice of Mrs. Gwynne-Holford of Buckland, Brecon, who has had so large a share in the establishment and administration of the hospital at Roehampton. An artificial limb has not only to be made and fitted, but very often it is necessary to make adjustments and repairs from time to time, and it will be a great advantage for the men resident in Wales to have a hospital to which they can resort in their own neighbourhood. The institution will also relieve the strain on Roehampton and lessen the period of waiting. It is stated that 6,557 cases of amputation had been notified to the Central Registry down to August 1st. Of these, 3,565 had been admitted to the Roehampton Hospital and 2,838 discharged. The number of men waiting to obtain admission to Roehampton was, however, 2,140. At the Welsh Metropolitan War Hospital at Whitchurch, in the suburbs of Cardiff, 300 beds have been allocated for the treatment of orthopaedic cases, and arrangements are being made to reserve twelve beds for such cases at the King Edward VII Hospital at Cardiff. It is intended to establish workshops in connexion with the new hospital for the manufacture of artificial limbs, and to enlist the assistance of the Cardiff Technical College, not only in the making of the artificial limbs, but also in giving instruction in various trades to men during their convalescence.

The Disabled London Soldier.

A Privy Councillor has written to the *Times* to ask who is accountable for what he describes as a pensions muddle. He points out that it is the duty of local pensions subcommittees to determine to what extent applicants for pensions are surgically or medically disabled, and he, good simple man, had supposed it obvious that one of the first things the county committees should have done was to appoint expert medical referees, to whom the subcommittees could refer difficult medical questions for an unbiassed opinion. No such assistance has yet been provided. "Surely," "Privy Councillor" concludes, "since millions of public money are at stake, it is essential that scientific precautions should be taken, in order that these funds may be judiciously distributed to those who have a just right to demand a pension as a fair compensation for their disabilities, and not as a charity." He challenged the Chairman of the London War Pensions Committee to explain, and Mr. Percy Harris has replied that that Committee, fully realizing the need for medical referees, prepared a list of doctors it proposed to appoint for a period of three months, pending the perfecting of the arrangements which it was understood the Statutory Committee was making with the Insurance Commissioners. These appointments, however, though only temporary, required the approval of the Statutory Committee, and this was refused on the ground that arrangements it was making made the plan unnecessary and superfluous. Mr. Harris justly points out that it is not only the judicious distribution of public money which is at stake; the duty rests upon local committees of assisting disabled men to obtain the medical or surgical treatment they require, and it is impossible for the committees to discharge that duty without competent professional advice. The answer, then, to "Privy Councillor's" question appears to be that the Statutory Pensions Committee is responsible for the muddle, and we are glad that attention has been called to the matter by a layman, for the error committed by the Statutory Committee in this respect is, we believe, due to faults in its constitution. It is unfortunate, but all of a piece with the methods of our governing classes, that a commission for the assessment and control of pensions to disabled men should be constituted without a single representative of the medical profession. Even on the special Disablement Committee of the Statutory Committee there is only one member of the medical profession, and we have no doubt that in his isolated position he finds it difficult to induce the Disablement Committee to look at the matter from the medical as well as from administrative and financial points of view. Although no alteration in the constitution of the Statutory Committee is possible without an amending Act of Parliament it would not be impossible for the Government departments represented to reconsider their nominations, with a view to giving medical expert opinion some representation on it, and, moreover, it is quite open to the Statutory Committee to strengthen the Disablement Committee by appointing more medical representatives. The suggestion will perhaps be met with the old foolish answer that medical men are not men of business. People who still repeat this parrot cry should set themselves to find out how medical matters are being administered in France. They will find that they are in the hands of medical officers, and they already know that the business is being carried through in a manner which has won the highest praise of the army itself, and is reflecting honour upon this country, for some of our allies have sent commissioners to study British medical organization and administration in France.

Canada.

The Canadian Pensions Board.

The personnel of the Permanent Pensions Board has now been officially announced. The chairman of the Board is Mr. J. K. L. Ross, of Montreal, a lieutenant in the Canadian Naval Service; for the past two years he has been patrolling in the North Atlantic, and has now presented his patrol boat to the Canadian Government. Shortly after the outbreak of the war Mr. Ross made a generous contribution to the public treasury in aid of the war. The other members of the Board are Colonel R. H. Labatt and Major John L. Todd, M.D. Colonel Labatt, who volunteered at the beginning of the war, went overseas with the first contingent, but was taken ill in England and underwent a serious operation. Upon recovery he accompanied his regiment to France and took part in the battle of Festubert, when he suffered severely from shell shock. Major Todd, who is Associate Professor of Parasitology in McGill University, went to England with the McGill General Hospital, and was appointed to the staff of the Director-General of Medical Services. He was a member of the Pensions and Claims Board under the chairmanship of Sir Montague Allan.

The Returned Disabled Soldier.

The annual meeting of the Saskatchewan Medical Association, held at Regina on July 18th and 19th, was one of the most successful in its history. The chair was taken by the president, Dr. George P. Bawden, of Moose Jaw. Last year the annual meeting was postponed on account of the war. Dr. Myers, of Saskatoon, read a paper on the returned disabled soldier, in the course of which he said that the task of making due provision should be the concern of every one, and its solution should not be left to the Military Hospitals Commission alone. Down to July 13th last, 236 disabled soldiers had returned to the province of Saskatchewan—75 men for immediate discharge without pension; 132 men requiring further medical treatment or rest; 18 permanently disabled men; and 11 reservists, undesirables, etc. Dr. Myers made the

following suggestions: Crippled soldiers should not be segregated nor gathered in large colonies, but whenever possible they should return to their former employer in some fresh capacity. Industries requiring comparatively little capital should be established in the province to give employment to such men—for instance, factories for making brooms, baskets, chairs, harness, and toys, and garment and knitting mills, candy factories; the manufactured article should be labelled "returned soldier." For those cases that required employment in the open, poultry raising, bee-keeping, market gardening, and the establishment of small sheep ranches in lands unfit for grain growing were suggested. A census of all available positions in the Government services might be taken, as well as of all the employers of labour in the province. A stipulation might be included in contracts given by the State to the effect that a proportion of the work be given to war cripples. This paper led to a discussion, and at the business session the following resolutions were passed:

1. That it is the sense of the Association in session that the Government conduct a census of all available positions of employment within its service and among the employers of labour in the province, with a view to employment of disabled and unfit returned soldiers.
2. That the Saskatchewan Medical Association feel constrained to offer their services to the Government for use in the solution of these problems in whatever way the Government may see fit.

Correspondence.

THE TERMS OF THE INSURANCE ACT.

SIR,—From time to time I still receive letters, or am appealed to in the medical press, concerning the proceedings and the effects of the National Insurance Act, as if I were in some way responsible for them. May I be permitted to state again, once for all, that I have not and never have had (save as a member of the large Advisory Committee) anything to do with the initiations, general provisions, or workings of the Act? When the bill was practically complete I was appealed to by many brother practitioners to try for better terms than those (four shillings a head I think it was?) originally offered.

Now, of the old club system I had very painful recollections. I saw my brethren sweated, exploited, and domineered over by vulgar officials, often sitting in public-houses; and many doctors from a sense of duty took certain clubs as virtually unpaid work, as some of us work gratuitously in hospitals. Other medical men who engaged more largely in club work made a living out of it only by reducing their medical services to the lowest possible standard. Thus, in the large majority of cases of club patients desiring a consultation, the doctors in attendance used to decline to spare more of their time in meeting a consultant or in writing any notes of such cases. And small blame to them, for the old club patient was often a very well-to-do person. With these recollections in my mind I did my utmost, with others, to get better pecuniary terms, and we succeeded in obtaining a large increase; indeed, the increase which a leading medical critic of the bill had privately intimated to me would be acceptable to the profession. With this effort my part in the bill, or Act, ended, and I took no further responsibility. It is true that, as we had been instructed on the pecuniary terms to be demanded, and had informed the Minister of these instructions, we did consider, when these terms were granted, that, so far as pay was concerned, the profession was bound, as a matter of good faith, to be satisfied. It is said that in one way or another the stipulated payments have not been received in full. Of this I know nothing, and express no opinion.—I am, etc.,

Cambridge, Sept. 14th. CLIFFORD ALLBUTT.

HEALTH VISITORS AND BIRTH INQUIRY CARDS.

SIR,—The antenatal and postnatal campaign now in vogue is excellent in intention and should accomplish much if it is carried on with judgement and discretion. But without these two qualifications it is likely to raise opposition, which is bound to prejudice, if not to defeat, the objects in view.

As I write I have before me a form of notification as follows:

CITY OF [Coat of Arms] ————.

NOTIFICATION BY A MIDWIFE OF HER ENGAGEMENT TO ATTEND A CONFINEMENT.

To the Medical Officer of Health, Guildhall, ————.

I hereby give you notice that I have to-day been engaged to attend .....

Name of mother, etc., etc.

Then follows a long list of questions.

I call attention to the official heading, the coat of arms, and the words underlined. The recipient naturally concludes that the document is authoritative, and that she is compelled to answer the questions on the day on which the form is received.

Midwives are much perturbed by these forms, as they seem to be ordered to betray professional confidence; and they feel themselves between the devil of unknown penalties from the authorities and the deep sea of loss of their patient's respect and regard, and possibly of their patient altogether.

Pregnancy is not yet compulsorily notifiable, and to distribute forms like these lays those who do so open to the accusation that they are trying to exploit the ignorance and timidity of the poor (midwives and patients) for the purpose of carrying out their objects.

Now, if pregnancy is to be made compulsorily notifiable, it must be made so for every one—for the duchess as well as for the charwoman. Again, the question of the person compelled to notify is important. If the duty is to be laid upon the attendant (doctor or midwife), the result will almost certainly be that patients will put off engaging their attendant to the last possible moment, and the care of the pregnant woman will be far less good than it is at present.

It is a mistake to suppose that antenatal care has only been discovered in the twentieth century. All careful doctors have practised it for a very long time, and all careful midwives have done the same; indeed, the Rules of the Central Midwives Board have recognized it from the beginning, and good midwives practised it before then. People are apt to think that a new technical word implies a discovery. On the other hand, a new technical word sometimes does good by attracting attention.

If the duty is to be laid upon the *patient* (which is the more logical alternative), is the duchess to find the health visitor marching unannounced into her bedroom?

All these details have to be thought out.

I am glad to say that notification such as has been complained of is *not* sanctioned by the Local Government Board. In the forty-fourth annual report, for 1914–15 (Supplement in continuation of the report of the medical officer of the Board, p. 65), these words occur:

> Such notifications should not be entertained without the formal and intelligent consent of the expectant mother.

Unless local authorities quote these words in any circulars which they issue such circulars cannot fail to arouse suspicion in the patient as well as in the doctor or midwife.

Unless notification (even voluntary) is enforced upon the rich as well as on the poor, the poor will feel themselves unjustly treated (when they know the facts). The exact process by which the care of pregnancy may be improved, by notification or otherwise, requires more careful consideration than it has hitherto received, from the point of view of the patient, the doctor, and the midwife. It ought not to be incapable of satisfactory solution.—I am, etc.,

Nutley, Uckfield, Sept. 19th. FRANCIS CHAMPNEYS.

THE TERMINOLOGY OF THE NEURONE.

SIR,—Professor Argyll Campbell, of Singapore, in a letter to me, suggests the name "centron" for the central part of the neurone which contains the nucleus, and is sometimes called the "cell body." The name is not inappropriate, being similar in form to those of the other constituent parts, and it suggests the source of the trophic influence without which separated parts degenerate.

The neurone would thus consist of a *centron*, an *axon*, and one or more *dendrons*. The latter may ramify into finer dendrites, while the axon itself may divide peripherally.

If the various societies concerned with neurological questions could see their way to agree to an official system of names, a desirable uniformity would be attained.—I am, etc.,

University College, London, Sept. 19th, W. M. BAYLISS.

POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—It is refreshing to be told by Dr. Rees that "never during the twenty-seven years of my medical life has the medical profession been in such bad odour with public authorities as it is at the present time." We ought to be glad of it, for it shows that there is some life left in us yet; people who are struggling to get their just rights, however feebly, generally are unpopular with those who are bent on depriving them of such rights. If, as he says, "the medical profession only exists for the good of the community," of course that is the end of the matter, but how many wild cat schemes do we see launched, often at our expense, under that shibboleth? And how much better is the community for them? If it had not been for our generosity in the past, and for the snobbish attitude of many of us, and especially of the leaders of the profession, in pretending that fees were the last thing we thought of, we should not be in the position we occupy to-day, for politicians hungry for votes have no mercy on generosity, and take our professions of complete disinterestedness literally because it suits their book to do so. How much do the lawyers do "for the good of the community," and how does the community reward them? By selecting them to govern the country and to occupy most of the fat offices in the empire, while the medical profession, "existing only for the good of the community," is marked out for attack and exploitation all round.

And can any of us doubt that there is more of it coming? I think Dr. Fothergill was abundantly right in the warning part of his letter in the BRITISH MEDICAL JOURNAL of August 19th: "The medical profession . . . finds itself unprepared, inarticulate, often caught unawares by advocates in its midst, and unable to protect itself or the interests of medicine." He proposes to meet this difficulty by getting on with the scheme for combining the various medical bodies by giving them all representatives on a new committee to be formed for the purpose. But will this solve the problem? What we want is an intelligence department in the British Medical Association presided over by a man who is a specialist in the kind of work required of him. After all, what will the new committee be composed of? Of men who have many other interests and many other things to do, and who only take up this work as more or less able amateurs. What we want is a man well accustomed to and skilled in lobby work, with a finger on the political pulse; a man who knows how to read portents and the signs of the times, and to read them correctly. For though we are most of us agreed that there are dangers ahead, how many of us know for certain what those dangers are and the direction from which they will come? And in this state of ignorance how can we tell where to plant our defences and which way our army should front?

It must be remembered that there is very little use in agitating against a Government bill once introduced to the House. When that has taken place, the reputation of the Minister interested depends upon his getting his bill passed without very material alteration, and he therefore brings all the weight of his party to bear with that object; the matter has become a purely political one. The time to influence him is when he is considering the provisions of his bill and has a comparatively open mind. What we want is therefore ample warning of what is going on, for it takes a good many weeks to formulate the policy of the British Medical Association by Council deliberations, discussion by the Divisions after the statutory notice, and final settlement by a Representative Meeting. Let us, therefore, set up the machinery to secure this warning, remembering that "forewarned is forearmed." Such an intelligence department would cost a great deal of money no doubt, but if we are going to fight at all we must spend money; if we win, the money will be well spent; if we lose, it will be thrown away. And we shall lose if we remain "unprepared, inarticulate, caught unawares, and unable to protect ourselves or the interests of medicine."

I make no reflections on our present officials; they have quite enough to do in other directions, and are fully occupied. What I contend for is a department to do this thing and nothing else, presided over by a specialist.—I am, etc.,

Oldham, Sept. 15th. F. L. POCHIN.

SIR,—I have read the various communications on the above topic in your columns which have appeared lately, but in the end find myself in a terrible muddle, for none of your correspondents define what they fear or desire. Now, let us have high ideals, but let us be practical and consider in the first instance what the public are likely to do to us, and then what we should like to do for the public. It does not require much prescience to predict what the public will do to us, when the opportunity arrives. They will try to run the Insurance Act more cheaply by cutting down the medical emoluments, and will choose the time of the discharge of an immense number of medical officers from the army, to act. Here is a contingency which is certain to arrive, and is ripe for discussion.

September 19th. "PANEL PRACTITIONER."

JUNG'S PAPERS ON ANALYTICAL PSYCHOLOGY.

SIR,—It appears to me if Dr. Mercier were robbed of symbolic language he would have to sacrifice a good deal of his rich humour. References to Tweedledum and Tweedledee, and expressions such as "putting the boot on the wrong leg" come from the unconscious itself. Psychoanalysts agree with him in thinking it "a mistake to use symbolic language in daily life," but with a different application. The insane person and neurotic do use this symbolic language in daily life. For with them the unconscious rushes through into reality, against their will, and with more or less violence, so that the lunatic lives in his dream, and the hysteric is at the mercy of his phantasies. A man who is functionally dumb is symbolizing his psychic pain or mental conflict in his aphonia.

I am flattered at being asked to define the unconscious, but a little hampered in my reply; for if I say it contains all that is below the threshold of consciousness, I shall be told I am defining it "in terms of itself." If I attempt a more philosophical definition it may prove to be "Greek" to Dr. Mercier. I would, however, venture to define it as the psychological contents which form the background of consciousness, and add further (following Jung) that these contents are in part of a personal nature—that is to say, valid only for the person concerned; and in part impersonal—that is, universally valid. This is so because man is not only an individual but also a member of the collectivity or herd, hence he has the historical background proper to these two aspects. It is from this abundant material that he draws the symbolism of his dreams and his neurosis.

There is very much in the unconscious besides what is "uncleanly." It is not only the source of instinct but of intuition and imagination. It therefore contains not only man's primitive tendencies but indicates the means of his liberation from them.

The "too firm attachment to the parents" is not to be taken concretely as "incestuous passion"; that is self-evidently false, but it must be understood as psychological incest, symbolic of a typical dependence upon authority, which rightly belongs to the childish personality but which by its undue persistence prevents adaptation to new circumstances in life, as also to new ideas. Neurosis has been aptly called "a failure in adaptation." The use of the word incest in this connexion arises from the fact that in dream and phantasy and in early mythology this psychical dependence upon the parents is symbolized as incest. It is an empirical fact that this *motif* turns up again and again in dreams. Why this is so and the meaning it has, is shown in Jung's *Psychology of the Unconscious*. One might also refer Dr. Mercier to Rank's *Das Incest Motiv in Sage und Dichtung*. There is much literature upon the subject.

We are forced to direct our researches to the unconscious whether we like the facts that transpire or not. The psychological views of insanity now widely accepted cannot admit that nearly the whole ground is covered by the statement that "diseases of the mind are diseases of the brain"; and this being so, we must confess our psychological knowledge is as yet very inadequate, hence we must seek to increase it by all means in our power. Research is necessary here as elsewhere, and merits the same tolerance, perseverance, and patience that is accorded it in other fields of our art.—I am, etc.,

London, W., Aug. 28th. CONSTANCE E. LONG.

Obituary.

SIR THOMAS LAUDER BRUNTON, BT., M.D., F.R.S.,

CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL, LONDON.

(With Portrait on Special Plate.)

WE regret to announce the death of Sir Thomas Lauder Brunton, which occurred at his residence in London, on September 16th, in his 73rd year.

Thomas Lauder Brunton, the son of James Brunton, of Hiltonshill, Roxburghshire, who married Agnes, daughter of John Stenhouse, was born at Bowdon, Roxburghshire, on March 14th, 1844. He was educated privately and then at Edinburgh University, where he had a brilliant career as a medical student, gaining prizes, honours, and gold medals in his various examinations. He qualified in 1866 by taking the M.B., C.M.Edin. degree with honours. In 1868 he was awarded the M.D. degree, with a gold medal, for his thesis on "Digitalis, with some observations on the urine." In 1867 he took the B.Sc. degree, in the following year he gained the Baxter Natural Science Scholarship, and in 1870 took the D.Sc. degree also at Edinburgh. For twelve months (1866–67) he served as house-physician in the Royal Infirmary, Edinburgh, under Professors Maclagan and Hughes Bennet.

His thesis on "Digitalis, with some observations on the urine," was a good piece of work, and foreshadowed a promising career as a scientific investigator which after-years fully bore out. The work was carried on in Dr. Maclagan's laboratory at Edinburgh, and consisted in great part of observations on the effect of the drug on his own output of urine and urinary constituents under carefully noted conditions of food, sleep, body weight, exercise, action of the bowels, etc. Six hundred qualitative observations were made, over the period of 121 days during which a standard diet in constituents and weight and quantity of fluid was rigorously adhered to. This series of observations was preceded by some preliminary experiments. As the result of these experiments he found that while small doses had little or no action, marked diuresis occurred when the drug was pushed so as to produce symptoms of poisoning. He found, also, that while the diuresis continued the absolute quantity of solids excreted daily in the urine was increased although their proportion to the urinary water was diminished. In this thesis and in later publications (*Proceedings of the Royal Society*, 1874, No. 153) he supported the view that the rise in blood pressure brought about by digitalis is due not only to the increased action of the heart, but also in great measure to contraction of the arterioles.

After a year as resident in hospital Brunton went to Vienna (1867) and worked for some months in Professor Brücke's and Professor Rosenthal's laboratories on the action of digitalis upon muscle and nerve, but he never published these experiments. He then went to Berlin for a short time, and worked there with what he believed was the identical kymograph employed by Traube in his researches in the action of digitalis. There, although he was hampered by the want of a registering haemodynamometer, he obtained proofs that digitalis both increases the force of the heart and causes contraction of the capillaries. Later, in working with A. B. Meyer, by means of the kymographion he succeeded in obtaining the evidence he wanted, and in establishing the view of the action of digitalis which is now almost universally accepted. (Action of Digitalis on the Blood Vessels. Brunton and Meyer: *Journal of Anatomy and Physiology*, 1873, vol. vii, p. 135.) From Berlin he went for a tour to Egypt, Syria, and the South of Europe, and in the winter of 1868–69 he lived in Amsterdam, studying physiological chemistry with Professor Kühne. Here he worked on the chemical composition of the nuclei of blood corpuscles (*Journal of Anatomy and Physiology*, November, 1869). The knowledge which he thus gained enabled him to write the section on digestion and secretion for Burdon-Sanderson's *Handbook for the Physiological Laboratory*. After Amsterdam, he studied at Leipzig, where he was admitted as one of the first students in Carl Ludwig's new institute. There Brunton worked on the independent contraction of the arterioles and capillaries, making some experiments on the effect of amyl nitrite and sodium nitrite (Ludwig's Arbeiten Vierte Jahrgang für 1869, S. 101; translation in *Journal of Anatomy and Physiology*, 1871, v, p. 92). Kronecker was one of his fellow students there, and the two formed a lifelong friendship.

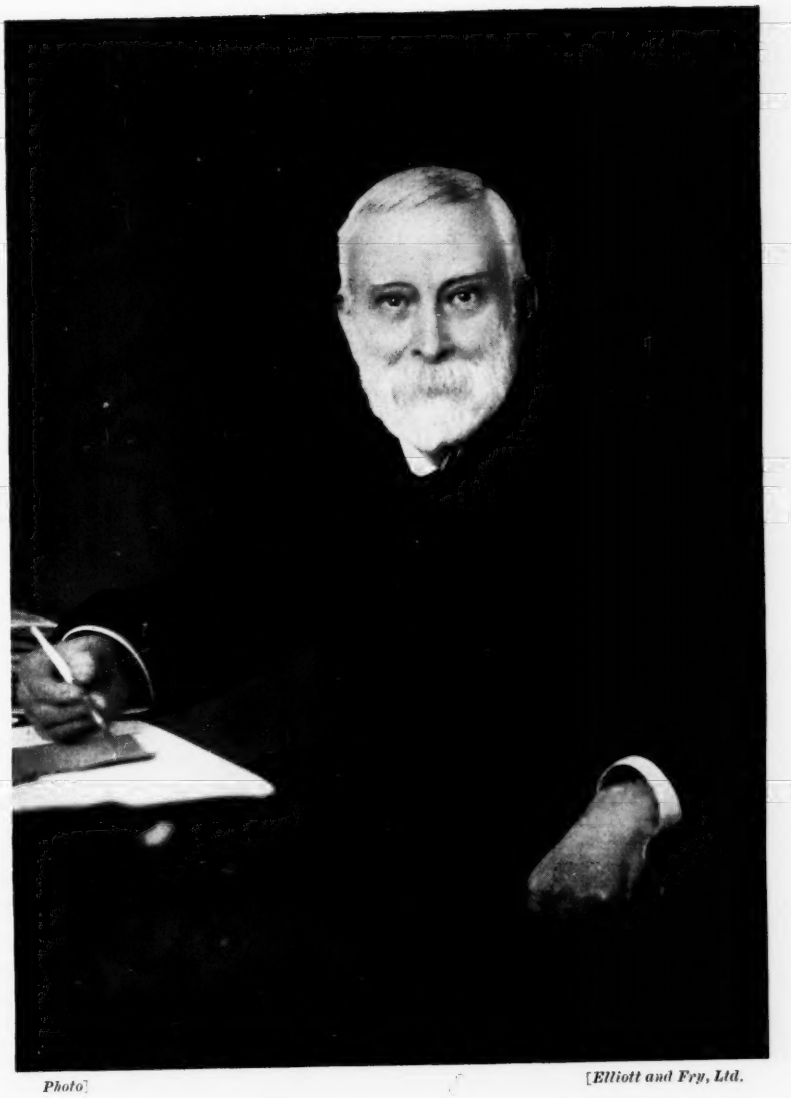
In 1870 he was appointed lecturer on materia medica and pharmacology at the Middlesex Hospital medical school, but in the following year he became attached to St. Bartholomew's Hospital as casualty physician and lecturer in materia medica, etc. He remained on the staff of St. Bartholomew's for thirty-three years, four years as casualty physician, twenty as assistant physician, and nine as physician. He then retired, although he had not reached the age limit, to give the younger men a chance of promotion. He was appointed consulting physician and governor of the hospital.

In 1871 he began to write his *Experimental Investigation of Medicines*, with the intention of expanding it into a complete textbook on experimental pharmacology, and before completing the part dealing with the circulation he wrote the section on digestion and secretion for Burdon-Sanderson's *Handbook for the Physiological Laboratory*. As he performed every experiment mentioned in his section, and repeated several of them many times, the writing of this short section involved incessant work in the laboratory for more than two years. As an example of this labour, he tells us that the statement that "pepsine, if absolutely pure, gives no xanthoprotein reaction" cost him many weeks' work. In 1873–74 he was engaged with Dr. (afterwards Sir) Joseph Fayrer in examining the action of snake venom and with Dr. Pye Smith on a report to the British Medical Association on intestinal secretion.

The rebuilding of the school at St. Bartholomew's Hospital caused an interruption in his laboratory work of nearly four years (1876–80), when he again resumed it with the aid of assistants.

Two or three years after he was appointed to lecture in materia medica at St. Bartholomew's Hospital, and before the new buildings were ready he tried to institute a pharmacological laboratory there. The place he obtained for the purpose was about 12 ft. by 6 ft., formerly used for washing museum jars, but he found some students to work with him. Later, when his practice demanded more time, he planned the research, paid all expenses, and gave his assistants a salary. In this way he was able to carry out a large amount of research work, which was published in his name and that of his assistant. Several present-day professors in materia medica and pharmacology began their scientific life under his guidance. The most important results which he obtained were those which enabled him to introduce the blood tension lowering drugs into practical medicine. The period over which the researches described in his first series of *Collected Papers on Circulation and Respiration* (1907) extended (1865–1883) was an important one in the history of the pharmacology of the circulation, for its beginning coincided with the first employment in England of registering apparatus for the investigation of the action of drugs on the circulation. Brunton made experiments in his earliest Edinburgh laboratory work on the blood pressure in animals under the influence of digitalis with a simple mercurial column, and on himself with a sphygmograph. He found that the facility in the use of the instrument which he thus acquired enabled him, while house-physician at the Royal Infirmary in Edinburgh (1867), to use it in ascertaining the rise in blood pressure which occurred in angina pectoris in a hospital patient, and by correlating the pathological data thus acquired with the knowledge of the pharmacological action of amyl nitrite which he obtained from Arthur Gamgee he succeeded in discovering a remedy for angina pectoris. He looked upon this discovery as the first complete example of rational therapeutics based on experimental, pathological, and pharmacological data.

In the department of physiological chemistry, scientific and practical, his work was chiefly directed to the purpose of investigating and expounding the manifold action of ferments and enzymes, not only in the process of digestion, but of assimilation, tissue-metabolism, organotherapy, the formation of toxins or antitoxins, and of immunity. In an address read before the International Congress of Medicine at Moscow (1897) he gave a general account of the subject and also described what he believed to be the first attempt at rational organotherapy or opotherapy—namely, his own unsuccessful efforts in 1874 to



Photo] [*Elliott and Fry, Ltd.*

SIR T. LAUDER BRUNTON, BT.

obtain a glycolytic enzyme from muscle, in order to enable diabetic patients to utilize the sugar in their blood. He actually administered raw muscle extracts to diabetic patients at St. Bartholomew's Hospital. He believed that these cases were the first in which portions of a solid organ were administered for the purpose of supplying a ferment which would alter tissue changes. Before that time only ferments obtained from the digestive canal had been used in medicine. (BRITISH MEDICAL JOURNAL, February 21st, 1874.) This mode of treatment became of great importance after 1889, when Brown-Séquard advocated it in regard to the testicle and myxoedema.

Brunton contributed a very large number of papers to medical literature, many of them being of a pharmacological nature. He collected and reprinted them from time to time in book form. In 1886 he published a volume *On Disorders of Digestion, their Consequences and Treatment.* It contained the Lettsomian lectures on this subject delivered before the Medical Society of London in 1885. As he referred in these lectures to many previous papers, he, for convenience in reading, reprinted twenty-one published between 1873 and 1885. These papers are miscellaneous essays on disorders of the digestive organs, and on albuminuria, dropsy and diuretics. They are all readable papers of a useful practical type, several of which appeared originally in the *Practitioner. Disorders of Assimilation, Digestion, etc.*, appeared in 1901. It contains a list of thirty-three papers on the subjects covered by the title dating from 1874 to 1901, which form the basis of the book. The chapters are mostly of considerable practical value—the pathology and treatment of diabetes mellitus, the influence of stimulants and narcotics on health, the relative digestibility of white and brown bread, indigestion, constipation, diarrhoea, abdominal pains, bile, biliousness, gall stones, etc. They contain a great deal of information based on a scientific consideration of the causes of the ailments, and also valuable advice gained by his own experience in treatment. In 1907 he published *Collected Papers on Circulation and Respiration*, First Series, chiefly containing laboratory researches. The preface contains matter of biographical interest. In this book there are thirty-eight papers, including the Harveian Oration delivered before the Royal College of Physicians in 1894. Among the papers are a thesis, "On digitalis, with some observations on the urine" (1868); the use of amyl nitrite in angina pectoris (1867); and other papers on digitalis and amyl nitrite. The book also contained his paper on "The science of easy chairs," originally published in *Nature* (October 17th, 1878), giving a somewhat popular account of the causes of muscular fatigue and the best means of relieving it.

His most important work was the well-known *Textbook of Pharmacology, Therapeutics, and Materia Medica*, which appeared in 1885. More than fifteen years before this date he had a work on materia medica ready for the press, but he asked the printer to wait a little in order that some improvements might be made and some redundances removed, for the work as it then stood was considerably larger than the 1885 book, which contained over 1,000 pages. As he went over the MS. again he found many unsatisfactory statements and uncertainties regarding the mode of action of drugs which he thought he could decide by a few experiments. But as he went on the labour grew, other engagements became pressing, further experience as a teacher and examiner made him discontented with his original work, and so he threw this aside and rewrote the book entirely! The immense labour this involved will be appreciated by every one who knows the book. The work was well received, and a third edition was called for and published in 1887. Another book which he published was entitled *Lectures on the Action of Medicines.* It contained the course of lectures on pharmacology and therapeutics delivered at St. Bartholomew's Hospital during the summer of 1896. The volume was published in 1897. It gives a general sketch of the mode in which drugs act upon the body. In the preface he stated that the lectures (pp. 673) were not intended for cramming. Their use was not to supply the student with all the information he needs, but to awake his attention, excite his interest, to impress on him certain points which will form a nucleus for his knowledge and around which he may afterwards group more information.

Sir Lauder Brunton was an old member of the British Medical Association, and took a consistent interest in its scientific activities. He held the offices of secretary and vice-president of the Section of Physiology at the annual meetings of the Association in 1875 and 1877 at Edinburgh and Manchester respectively, as well as those of president and vice-president of the Section of Pharmacology at the annual meetings at Brighton in 1886 and London in 1895. He gave the address in medicine at the annual meeting in 1891, when the Association met in Bournemouth, the subject selected being twenty-five years of medical progress.

Brunton was one of the founders of, and acted as temporary secretary to, the National League for Physical Education and Improvement. The league was inaugurated in 1905 as the result of the military experts' report (1903) to the effect that a large proportion of young men of this country were unfit for military service. After considerable discussion and planning the league was formed, with the object of co-ordinating the various agencies which were then working independently of each other for the advancement of physical training, and of supplying information and assistance for the benefit of the physical health and well-being of the people in remote and poor districts. Brunton gave addresses in various parts of the country in the subject, and was president of one of the local branches of the league. The league now issues leaflets in English and Welsh on many subjects—on the importance of cleanliness in home and person, the feeding and management of babies, clean milk, etc.

His connexion with the Royal College of Physicians was lengthy and practical and honourable. In 1870 he became a member and in 1876 a fellow of the college. He acted as one of its examiners for fourteen years between 1880 and 1900, and was a censor in 1894 and 1895. In 1877 he delivered the Goulstonian lecture on "Pharmacology and therapeutics." In 1889 the Croonian lectures on "The Connexion between chemical constitution and physiological action"; and in 1894 the Harveian Oration, which was on some points in the physiology and pharmacology of the circulation. In 1874 he was elected a fellow of the Royal Society, chiefly on account of his work on digitalis. He served on the Council of this society from 1882–84 and 1905–6, and he was also vice-president in the two latter years. He was sometime examiner in materia medica and pharmacology in the universities of Edinburgh, Oxford, London, and the Victoria University of Manchester. He was a member of the committee appointed (1886) by the Local Government Board to examine Pasteur's treatment of hydrophobia, and, as the nominee of the *Lancet*, of the Nizam of Hyderabad's second commission on chloroform (1889). He was also president of the second International Congress of School Hygiene held in London (1907). He was a fellow of the Royal Medical and Chirurgical, Pathological, Physiological, Botanical, and Medical Societies of London; honorary member of the Pharmaceutical Society; honorary member and at one time senior president of the Royal Medical Society of Edinburgh (1866); foreign honorary member of the American Academy of Arts and Science; correspondent of the Academy of Natural Science, Philadelphia; associate fellow of the College of Physicians of Philadelphia; corresponding member of the Therapeutical Society of Paris; honorary member of the Imperial Military Academy of Medicine of St. Petersburg; honorary member of the American Therapeutic Society. He received the honour of knighthood in 1900, and was created a Baronet in 1908. He was honorary LL.D. of Aberdeen and of Edinburgh, and honorary D.Sc.Dub. He married in 1879 Louisa Jane, daughter of the late Venerable Edward A. Stopford, Archdeacon of Meath, who predeceased him (1909).

He is succeeded by his son Major James Stopford Lauder Brunton, who, after serving in the Royal Engineers, was compelled to retire owing to ill health. He entered McGill University, Montreal, as an undergraduate in the science faculty, and after taking his degree became attached to the Geological Survey of Canada. At the beginning of the war he offered his services to the Canadian Government as instructor of the Canadian Engineers, and is still doing valuable work in that appointment. Sir Lauder Brunton's second son, Edward Henry Pollock Brunton, B.A.Cantab., M.R.C.S., L.R.C.P.

temporary Lieutenant, R.A.M.C., was killed in action in France on October 8th, 1915.

A memorial service, held at St. Peter's, Vere Street, on September 20th, was attended by representatives of the Royal College of Physicians, the Royal Society, the British Science Guild, the Royal Society of Medicine, and St. Bartholomew's Hospital, institutions with which the deceased was directly connected, as well as by a large number of friends. The interment took place on the same day at Highgate.

In Brunton was a mingling of shrewdness and simplicity not uncommon in the best type of his countrymen. He was an untiring worker, and in all scientific subjects an omnivorous reader and questioner. He thoroughly enjoyed the rewards of his success as a physician—not only, or chiefly, the pecuniary rewards, but the opportunities it gave him to know many men eminent in other professions. He had a keen sense of what the public wanted to know, and was in his own way a great popularizer. In medicine he had his foibles no doubt—a somewhat excessive belief in the efficacy of drugs in desperate conditions was one—but he was deeply imbued with the scientific spirit, and inspired by a sincere desire to better the state of the poor and suffering. He had been in declining health for a year or two. The war in many ways hit him very hard. He had, as he supposed, many friends among German men of science; the revelation of their mental attitude towards us was a heavy blow to him, and the death of his second son a great grief. But he bore himself bravely to the last, was interested in all efforts to lessen the suffering the war produced, and, when he could not give time and energy, gave money freely, even lavishly. He was a kindly Scot.

DR. JOHN MUNRO CAMPBELL, assistant-surgeon to the Glasgow Royal Samaritan Hospital for Women, died on September 6th in a nursing home in Glasgow. He was a native of Edinburgh, and studied at Glasgow, taking the degrees of M.B. and C.M. in 1890. Dr. Munro Campbell had an extensive practice in Newlands, where he resided. He was elected a member of Eastwood School Board, and acted as convener of the Medical Treatment Committee. He had been overworked since the war began, and a month ago his health completely broke down. He was a member of the Association, and contributed some papers to the JOURNAL, of which the most important was perhaps the report of a case where a man, aged 60, took by mistake a tablespoonful of a mixture of equal parts of linimentum belladonnae and tinctura opii. Apomorphine, and afterwards several doses of pilocarpine, were administered hypodermically, and twenty four hours after taking the poison the patient seemed quite well, yet he died suddenly about two hours later when raised in bed.

DR. HARRY GOODSIR MACKID, who died at Calgary, Alberta, on August 17th, was born in Goderich, Ontario, on August 19th, 1858, of Scottish parentage, his father being a native of Edinburgh, and a minister of the Presbyterian Church. After receiving his preliminary education at Goderich, he entered the University of Toronto, where he took the degree of B.A., and in 1879 his degree in medicine. His medical studies were later completed in the hospitals of Vienna, Berlin, London, Edinburgh, and Glasgow. Dr. MacKid went into practice first at Lucknow, Ontario, and four years later removed to Seaforth, and in 1889 to Calgary, where he continued to practise up to the time of his death. As surgeon of the Canadian Pacific Railway, Dr. MacKid was closely associated with the railroad men of Alberta, and was known and esteemed in every construction camp and hospital from Medicine Hat to the British Columbia boundary. He was one of the most devoted and energetic members of the Canadian Medical Association, and, in 1911, was elected President. He had an extremely attractive personality, and—to quote from a Calgary newspaper—had perhaps the widest circle of personal friends of any man in Alberta. His son, Captain L. S. MacKid, is on active service.

LIEUTENANT-COLONEL WILLIAM SELBY, D.S.O., Bengal Medical Service, died at Lucknow on September 8th. He was born on June 16th, 1869, the son of the late Prideaux Selby, of Kowit, Croydon. He received his medical education at St. Bartholomew's Hospital and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1892, becoming F.R.C.S.Eng. in 1905. He entered the I.M.S. as surgeon-lieutenant on July 28th, 1894, became surgeon-captain on July 28th, 1897, major on July 28th, 1906, and lieutenant-colonel on July 28th, 1914. He served in the Chitral campaign of 1895, taking part in the relief of Chitral, and gaining the frontier medal with a clasp; on the north-west frontier of India in 1897–98, in the operations on the Samana range in August and September, 1897, and in the relief of Fort Gulistan, getting two more clasps; and in the Tirah campaign of 1897–98, when he was present in the actions of Chagru Kotal, Dargai, of the Sampagha and Arhanga passes, in the operations in the Waran Valley and action of November 16th, 1897, in the operations at and around Dwatoi and action of November 24th, 1897, in the operations against the Khanni Khel Chamkannis, and in the operations in the Bara Valley, December 7th to 14th, 1897. For these services he was mentioned in dispatches and received another clasp, as well as the D.S.O. He was appointed honorary surgeon to the Viceroy on April 15th, 1910, and was the senior, in date of appointment, of the holders of that post. When the new King George's Medical College was opened at Lucknow a few years ago he was appointed principal of the college and professor of surgery.

LIEUTENANT-COLONEL GEORGE MICHAEL JAMES GILES, Bengal Medical Service (retired), died at Plymouth on August 24th, aged 62. He was born on December 20th, 1853, the son of the late Captain George Giles, R.N., and educated at St. Mary's Hospital; he took the diplomas of M.R.C.S. and L.S.A. in 1876, the degree of M.B.Lond. in 1877, and the certificate in sanitary science and the F.R.C.S.Eng. in 1880. He acted as house-surgeon at St. Mary's and served as a civil surgeon in South Africa, in the operations against the Galekas in 1878, and in the Zulu war of 1879, receiving the medal with a clasp. He entered the I.M.S. as surgeon on October 2nd, 1880, became surgeon-major on October 2nd, 1892, and lieutenant-colonel on October 2nd, 1900, retiring on January 15th, 1901. In his early service he spent some years as surgeon naturalist in the Indian survey ship, the Royal Indian Marine steamer *Investigator*, and in 1886–87 accompanied the late General Sir William Lockhart on an exploring expedition in the Pamirs. Subsequently he went into civil employment in the Central Provinces, and later was transferred to the Sanitary Department in the North-West (now the United) Provinces. After his retirement he lived for some time at Plymouth, and later on settled at Portsmouth, County Frontenac, Ontario, Canada. At the beginning of the war he joined the Canadian Army Medical Corps, with which he came to England, and was for some time in charge of Bencote House Hospital, Oxford. He was the author of several scientific works: *Kala-Azar and Beri-Beri, Handbook of the Gnats or Mosquitoes, Climate and Health in Hot Countries*, and *Outlines of Tropical Climatology*.

DR. THOMAS A. ASHBY, of Baltimore, professor of gynaecology in the University of Maryland and one of the original members of the American College of Surgeons, died on June 26th at the age of 67. He was the founder of the *Maryland Medical Journal* and its editor from 1877 to 1892. He was the author of a textbook on the diseases of women, which was published in 1903. In 1912 he was elected a member of the House of Delegates of the Maryland Legislature.

DR. LUCIANO MEONI, assistant in the medical clinic of the University of Perugia, was killed recently in the trenches at Podgora. He was a man of great promise, and, although only 31 years of age, was the author of a number of papers embodying the results of observation and laboratory research. He has left unpublished an important work on chorea and many clinical and bacteriological notes on cerebro-spinal meningitis.

DR. CARLO TIRABOSCHI, who recently died at the age of 40, was assistant in the medico-micrographic laboratory of the Italian Public Health Bureau, Rome. He was the

author of researches on the part played by insects in the diffusion of plague, on human and bovine tuberculosis, on the vibrios in water, and other subjects.

DR. UGO CALCATERRA, who as an official of the Bureau of Hygiene of Bologna had charge of the medical students' quarters, was recently killed on the Trentino front. He had just completed his 30th year. A commemorative meeting of the Communal Council was held at which the Syndic was present. The Health Assessor proposed that prizes in hygiene bearing the name of Calcaterra should be founded.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Karl Fraenken, formerly professor of hygiene in the University of Halle, aged 54; Dr. Hermann Klaatsch, professor of anatomy, anthropology, and ethnology in the University of Breslau, aged 53; Dr. Paul Friedrich, professor of surgery in the University of Königsberg, aged 51; Dr. Frederic Schmid, of Geneva, director of the Swiss Federal Health Bureau, aged 66; Dr. Thomas Hubbarb Russell, successively lecturer on surgery, professor of materia medica and therapeutics and clinical surgery in the Medical School of Yale, and surgeon to the New Haven General Hospital, aged 63; Dr. Pietro Grocco, professor of clinical medicine in the Istituto di Studi Superiori, Florence, and Senator of Italy, well known by the "paravertebral triangle" which bears his name and by many valuable researches on Graves's disease, polyneuritis, the pathology of the heart, and other subjects, aged 60; Dr. Max Billard, of Paris, author of works dealing with the period of the French Revolution and the First Empire, of which the best known are *Les Tombeaux des rois sous la Terreur; Les Maris de Marie-Louise* and *La Conspiration de Malet;* Dr. Xavier Delore, formerly surgeon to the Charité Hospital and assistant professor in the Medical Faculty of Lyons, aged 89; Dr. Robert Allen Blood, surgeon-general of Massachusetts from 1896 to 1904, and president of the Association of Military Surgeons of the United States in 1902, aged 77; Dr. Manuel Gomez de la Maza y Jimenez, professor of botany in the University of Havana, and author of important works on the flora of Cuba, aged 47; Dr. R. Benavides, for many years professor of midwifery in the University of Lima, and president of the National Academy of Medicine of Peru, aged 84; Dr. Giuseppe Cattaneo, surgeon to the San Matteo Hospital, Pavia, and founder of the tuberculosis dispensary there, aged 83; Dr. D. A. Gorton of New York, for many years editor of the *National Quarterly Review* and the *Medical Times*, and founder of the Eugenic Society of America, aged 84; and Dr. Wisner R. Townsend of New York, one of the best known orthopaedic surgeons in the United States, aged 58.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C. (France) desires to exchange with M.O. in any capacity at home, or with M.O. in ambulance train, hospital ship, or base hospital. Address No. 3700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. (Territorial), attached artillery unit eighteen months in the line, is desirous of effecting an exchange with R.A.M.C. officer on home service. Hospital work in London preferred. Address No. 3800, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

R.A.M.C. Exchange, Cairo.—London stationed officer, desiring immediate exchange to Cairo Hospital, should apply, stating rank and appointment, to Dr. Nicholson, the London Fever Hospital, N.

AT a recent meeting of the Yale Corporation it was decided to accept a recommendation of the executive board of the school of medicine that a limited number of women should be admitted to the medical school of the university.

THE New York Health Commissioner has invited a number of pathologists and bacteriologists to consider the problems of poliomyelitis and plan out a co-ordinated series of investigations on the subject. Among them are Professors G. J. Adami, of McGill University; Hektoen, of Chicago; M. J. Rosenau, of Harvard; Theobald Smith, of the Rockefeller Foundation; Victor Vaughan, of Michigan, and W. H. Welch, of Johns Hopkins. Associated with these will be Dr. Simon Flexner, Dr. Hideyo Noguchi, and others.

Medical News.

A PSYCHOPATHIC clinic has been established at Sing Sing prison, New York, under the direction of Dr. Bernard Glueck, who was formerly on the staff of the Government Hospital for the Insane at Washington. The object of the clinic is to determine the mental condition of the prisoners and to study the underlying causes of crime.

THE excellence of the work done by the medical men sent out by the London Missionary Society in India, Africa, and China is well known to those who are interested in medical missions. The society has published a general account of what is being done in a pamphlet by Mr. E. A. Preston, entitled *The Healing Hand*. A few details of the work of each of the twenty-four mission stations are given, and photographs illustrating the work are reproduced.

WE have received the first number of a new monthly periodical entitled *Cronache di Medicina Politica*, published at Naples under the editorship of Dr. G. Santoro. Its character and aims may be gathered from an utterance of the great Italian physician and statesman, Guido Baccelli, which is printed on the front page as a motto: "The action of the modern State shows clearly that almost all sociological doctrine rests on political medicine as its natural basis." Among the contents are descriptions by Dr. Giuseppe Tropeano, professor of social medicine in the University of Naples, of a proposed hospital for children at Posilippo, and of the Committee of Social Assistance for mothers and Infants in the province of Cosenza initiated by Dr. Santoro.

AN association of French doctors serving at the front has been formed. Its head quarters are at the Bordeaux Athénée. Its objects are to tighten the bonds of friendship among medical men on active service, to keep a list of dead comrades, to help their families as far as may be possible, and to defend the interests of members. During the war the association will deal with the taxes, rent, and insurances of doctors, and with questions concerning locumtenents, etc. After the war it will endeavour to facilitate the reconstitution of practices by negotiating with the men who have taken the place of those away on military service; it will help young practitioners to find work, and will make efforts to induce public authorities to give preferential treatment in the matter of appointments to men who have served.

THERE are two schools in Paris for the teaching of massage to blinded soldiers, one at the Grand Palais, the other at the annexe of the Quinze-Vingts, a hospital for the blind. The method of instruction employed is that of Dr. Guilbert, which is based on the principle that the blind are the best teachers of the blind. The first step, therefore, was to train a number of teachers. The pupil places his hands lightly on those of the instructor and follows their movements, and the teacher, by touching the elbow or shoulder of the pupil, notes any errors in execution. To supply the anatomical knowledge required for efficient massage, a series of thirteen plates in relief has been prepared with the help of orderlies who before the war were skilled sculptors.

IN a Berlin letter to the *Muenchener medizinische Wochenschrift* (May 2nd, 1916) a pathetic story is told of Berliners appealing to their doctors for extra food cards to supplement the meagre diet afforded by the food ration. It appears that as soon as a new article of food was added to the card system, the consulting rooms of the medical profession in Berlin were stormed by crowds anxious to circumvent this latest attack on their inner man. At first serious difficulties often arose, but energetic protests on the part of the doctors led to diminution in the number of applicants. The German Government must have foreseen that the medical profession would be placed in an invidious position were its decision to be the last word in the matter of feeding the individual; and this consideration probably explains why supplementary cards for white bread and flour cannot be provided by the medical profession. The prescription of cream by doctors is also not permitted; the sale of cream is regulated only by the police. Supplementary butter cards may, however, be secured when application is made by certain physicians. Most of these applications have been found to be fully justified, and only in a few cases has the claim for an additional supply of butter been found on inquiry to be trivial. When it was realized that these claims would be scrutinized before being allowed, the run on the doctors' consulting rooms ceased.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

HARD CASE asks for advice as to the best charitable institution into which a nurse aged 60, now completely deaf, can be received. She was attached to a county hospital for fifteen years, and worked as a fever nurse for fourteen years afterwards. She invested her savings in the establishment of a nursing home which proved a failure.

LETTERS, NOTES, ETC.

FRIED WOUND DRESSINGS.

DR. DOUGLAS H. STEWART (*Amer. Journ. Obstet.*, August, 1916, p. 282) advocates the frying of dressings; when impregnated with lard and subjected to a temperature of 340° F., they are sterilized and so altered in consistence that they will not adhere to the wound. The nurse uses an ordinary gas flame from a two-burner gas stove; upon the top of such a stove she places a toaster to prevent the lard burning. Then in a deep but narrow stewpan or an agate pail, she places a saucer inverted so as to prevent the bandages coming in contact with the metal bottom. Upon the saucer she places 4 lb. of lard, lights the gas, and melts the lard. Using a long bullet forceps she picks up a drop or two of water occasionally, and drops it into the molten lard, because when the latter "spits" the temperature is correct (300° or over). Swabs done up in packages of four and tied with thread are put into the boiling lard, which is still and does not bubble. On contact, the air is driven out of the bandages and the lard boils furiously, especially at the edges of the swabs. As soon as the boiling becomes less vigorous another package is added, and then another until the pail or receptacle is filled to within two inches of the top. The swabs float and must be kept submerged with the long forceps. Directly the pail is sufficiently full a saucer should be placed on the top of the swabs and a piece of gauze put in as an indicator. When the latter has become light brown in colour, not charred but merely slightly scorched, the flame is turned off and the whole allowed to stand and cool to 180°. A sterile towel is spread over an enamelled dish or wash-basin, and the swabs are picked up with the bullet forceps and placed on the towel which is folded over them, or else they are covered with a second towel.

PATIENTS OF PARTNERSHIPS AFTER THE WAR.

H. asks: Can you help me to clear up my position after I return to practice? I shall make it as generic as I can. Postulate a partnership of which I am the junior member. I have gone on active service, and there are many such. Patients of the partnership may be divided into several classes:

1. Those indifferent which of us they consulted.
2. Those who were definitely my partner's patients.
3. Those who were definitely mine—that is, rarely or never saw my partner professionally.
4. Those who, though my partner's before I joined him, became attached to me—really now "my" patients.

Some of each of these four classes may, during my absence, consult our neighbours, and for divers reasons—mostly too obvious to mention. Let me suggest a few:

(*a*) They may think they are not getting sufficient attention (not an unlikely event in the winter months).
(*b*) Some of class "3" may prefer a neighbour as "second choice."
(*c*) A number of class "4" will be shy of returning to my partner; they imagine he may be "offended" because they left him (this is an undoubted fact).

Now, Sir, where are we with these patients after the war is over?

(i) Some doctors claim that all partnership patients are fair game simply because one partner is left—they even include class "3" and class "1"!
(ii) Others who agree class "3" and "1" are not their patients, stick to class "4" because they know of old that my partner did attend them and take care not to ask if I was in attendance when I left (I know of a definite case of this in my practice).
(iii) Are even class "2" fair game? May it not well be that malcontents there would never have been so had I been at home and things going normally?

My opinion is that every doctor who is a gentleman will simply ask himself: "Would this be my patient had Dr. —— not gone away?"

Am I right? If not, what is the position? Have we any ethical right to reclaim the patients in any of the above classes, and if so, how can it be done without creating such an invidious and strained relationship between us and these patients, that we would rather do nothing? I fear we shall have to bear the loss of many patients as part of our patriotic sacrifice; if it must be so, let us do it cheerfully and be glad if we are left fit and strong.

THE DISSEMINATION OF VENEREAL DISEASE.

AN IRISH G.P. writes: Lately a great deal has been written about the treatment of venereal disease, and a scheme has been drawn up by the Local Government Board which will, it is hoped, improve things; but it is extremely doubtful if the steps advocated really get to the root of the matter.

Within the past few days I have been consulted by a man suffering from gonorrhoea. He stated that he had had three previous attacks; that the present one had been the most severe, and that he had had it for six weeks, during which period he had been treated by a chemist in a small town, but without avail. The only reason he consulted me was that he wanted to be "cured at once," as he intended to be married in three weeks. As the result of a straight talk he departed very much annoyed, and I will probably not see him again, and in the ordinary course of events he will communicate the disease to his wife. Can nothing be done in such a case? What is required is to follow the example of Australia—make it unlawful for any person other than a legally qualified practitioner to treat any such case, and establish a legal penalty for communicating the disease to others, and for marrying before he can be certified as cured.

"A CASE OF INTRAUTERINE SCARLET FEVER."

DR. R. CRAIK (Ealing) writes: Some years ago I saw an infant with desquamation soon after birth. As there had been scarlet fever in the house, I notified the case as such. After a month or two, however, the desquamation was worse. It continued for years, and was accepted as ichthyosis. I remember, also, a case of slight desquamation (with no suspicion of infection) soon after birth, which disappeared in a few days. My impression is that most experienced monthly nurses have seen such cases. Thus desquamation soon after birth requires evidence other than possibility of infection to warrant suspicion of scarlet fever. In the case which they report (BRITISH MEDICAL JOURNAL, September 16th, p. 389) Drs. Liddell and Tangye put forward the presence of albuminuria as sufficient corroborative evidence to warrant the inference that the fetus was infected with scarlet fever *in utero*. "The desquamation continued for several days, and the urine showed distinct traces of albumin. Apart from these two features the child appeared perfectly healthy." Now, during the first few days of life albuminuria is so common (Simon, *Clinical Diagnosis*, 1907, p. 441) that not much importance can be attached to this. Is it not possible that the "thorough washing which removed all traces of lanugo" is responsible for this combination of a common (albuminuria) with an uncommon symptom (desquamation) soon after birth, and for the fact that the child notwithstanding "appeared perfectly healthy"?

CLEANLINESS IN SCHOOLS.

DR. HENRY HICK (New Romney) writes: In connexion with the question of cleanliness in schools, may I be allowed to quote a short passage from my annual reports?

"Cases are frequently reported of typhoid carriers. Some years ago many cases of typhoid in one town were traced to one carrier, a worker in a dairy, who infected the milk. Now, when it is realized that the typhoid germ lives in the bowel of the carrier and how it is transferred to the milk, the necessity of absolute cleanliness is apparent. In the schools such habits of cleanliness should be insisted on, and every child made to wash after a visit to the closet, but, instead of anything of this sort being done, not even a proper supply of paper is provided in many cases. When one considers that many of these children will be handling food in their life's work, it makes one shudder to think that not only are they not trained to cleanliness, but practically encouraged in filthy habits."

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